Who Are the Global Competitors? Location Incentives and Competitive Conditions in Latin America, the Pacific Rim, and Europe

by

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Prepared for:
The Conference on "Globalization and the North American
Free Trade Agreement: Impact on Rural Communities."

Wye Woods, Maryland; October 7th-9th, 1993

Abstract: It is increasingly difficult to obtain reliable information on the full range of factors that affect the location decisions affecting branch plants of contemporary transnational firms. The complexity of location incentive structures combine with the confidentiality affecting both production functions within locating firms and the incentive packages which local governments offer them to obscure the bases upon which current location decisions are being made. One result may be an over-emphasis upon relative labor costs in evaluating local economic competitiveness. Another may be a tendency to underestimate the prevalence, and the magnitude, of financial incentives to plant location around the world.

This paper presents a preliminary report on a project at the University of Texas which is developing a comprehensive database on regional location incentives and relative regional competitiveness. The paper presents data gathered recently from a cross-section of local economic development institutions worldwide, using an unusual real-world data-gathering simulation. It illustrates the range and magnitude of relative costs of production and of some of the incentives offered by both low-wage regions and competitive high-wage areas. It illustrates three points: 1) that the range of incentives typically used in the U.S. is more restricted than those provided by competing regions, especially in Europe;; 2) that the full range of cost differentials are not directly correlated with relative labor cost differentials; and 3) that the future potential of rural and small-town U.S. locations should not be dismissed for many plant location decisions.

Introduction. Economic globalization means that all the world now competes with increasing effectiveness for virtually any production opportunity. Tariff reductions worldwide enhance that process. GATT negotiations and the creation of the European Economic Community would appear to level the competitive arena, reducing allowable subsidies and location incentives. How acute is that competition? What are the current rules of the game? What incentives, what subsidies, what differences in factor costs still affect contemporary location decisions? How does rural and small-town America compare with other principal regions of the world in this global competition?

Gathering information to answer these questions is inhibited by several dimensions of definition and confidentiality. Little of the information regularly gathered and published by national organizations is specifically relevant to the location decision of an individual firm or plant. Aggregate average compensation figures, for example, are of little relevance when there are wide disparities across regions within nations and when employers are primarily interested in entry-level wages or in the wages of workers with some specific training and experience. There is little or no gathering of systematic infomation on the availability of labor pools at the local level with specific skills or experiences. Furthermore, the very process of plant location takes place, most frequently, in a context of acute confidentiality, both with respect to the identification of the firm (lest its competitors learn of its strategies) and with respect to competing local jurisdictions (lest competing areas learn of -- and counter -- the incentives they may be offering).

This brief paper uses an unusual data set gathered for this purpose to present a "snapshot" of the 1993 competitive arena worldwide for electronics assembly plants and similar facilities. It explores the environment within which branch plant location decisions are taking place and identifies the nature and magnitude of location incentives in rural America and in some of the areas most competitive with it.

Methodology. An original set of data was gathered for this project using a real-world data-gathering simulation, imitating the process by which a firm would obtain the key information needed to begin a location decision process. A two-page fax was sent to approximately 30 local economic development organizations across the U.S. and in Europe, Central America, and Asia. The groups were identified through recent issues of <u>Site Selection</u> magazine and other standard sources; the fax that was sent to each is reproduced as Appendix 1. The fax requested both general information on location incentives in the area covered by that organization and responses to ten concrete questions that would be needed by an ostensible "Fortune 500" client planning "an electronics assembly plant" which would employ some 500 by the end of 1994 and "an estimated 1000 by the end of 1995." Response was requested within approximately one week.

The concrete questions sought information on the following items:

- a) lease/purchase prices for a "single-floor air-conditioned production space" of approximately 40,000 square feet;
- b) current new construction costs for "an air-conditioned shell of 40,000 square feet with steel truss vault and sidewalls of precast concrete or concrete block";
- c) prevailing wages in that area for electronics production-line workers "with two years or more of experience in the industry," including the standard benefits package required by law or traditional in that labor market;
- d) local prices for 100,000 gallons of water per day;
- e) local prices for 250,000 kilowatt hours of electricity per month;
- f) current rates of property taxation for industrial facilities, the most attractive tax abatement recently extended in that locality, and the abatement likely for a plant of the proposed magnitude;
- g) whether public financing of any sort might be available for the costs of plant construction, purchase of equipment, and the training of workers;
- h) whether national or federal incentives might be available, including profit or income tax discounts, export tax rebates, etc., for a firm that exported 80% to 90% of its production;

- i) air freight rates from that site to Austin, Texas, for "a standard air freight container weighing approximately 3,500 pounds (1.7 metric tons)";
- j) present restrictions on the quality of plant effluent water, "especially with respect to the standard effluents of electronics manufacturing"; and
- k) whatever other location incentives might be available.

Response to the information request was rapid. In the first round of international requests, approximately one-third of the groups were found to have non-working phone or fax numbers. But 70% of those contacted replied within the one-week stipulated. For U.S.-based groups, generally state economic development offices, nine out of ten responded; and most of them sent copies of the fax to a selection of their own local collaborating groups.¹

The pattern of non-responses may also be important. There were no responses from organizations in Japan, Mexico, or Eastern Europe. In the case of Japan there may have been an *a priori* decision that their sites would not be competitive; but the recipients did not know whether the decision was simply focused on alternative Japanese sites or on sites worldwide. In the cases of Mexico and Eastern Europe, it is clear from follow-up contacts that local development efforts are not as well organized as they are in other regions.

The sample of responses analyzed here include seven states in the U.S. (CA, GA,ID, KS, KY, MN, and TX), two sites in the Pacific (Hong Kong and the territory of Guam), two Central American countries (Honduras and El Salvador), and less-developed regions of five European countries (Spain, Austria, Ireland, Germany, and France). Subsequent analyses in this project will incorporate a larger set of Latin American and Asian sites.

¹ It is clear that respondents spent considerable time and energy in the preparation of their responses. Each respondent will receive, at the conclusion of the study, an explanation of the purpose of the project and a complete set of the summary data gathered. This will provide them unprecedented access to information on the competitiveness of their strategies vis-a-vis a large set of their competitors. It is hoped that this will assuage some of the irritation that is also likely.

Relative regional costs. The relative costs across land and structures, labor, freight, water, and electricity are illustrated in table 1 for fourteen sites representing fourteen regions. Some of the estimates that arose, such as structure costs in Texas were selected because they represented unusual, but presumably recurring, circumstances. In that case, one local development agency offered a 100,000 sq.ft. facility for \$1.00 per year, reconditioned at their cost to the client's specifications. In the Styria region of Austria, similarly, the rate that was quoted was for an available building. These rates should be taken as illustrative, rather than definitive; for differing implicit definitions were used for compensation costs, electrical demand levels, etc.

Table 1: Relative regional costs of production

	Structures	Labor Costs	Air Freight	Water	Electricity
	Lease Cost	Avg. Comp.	Cost/lb to	Cost/day @	US\$/kwh
	/sq.ft,/mo.	(2 yrs. exp.)	Austin	100,000 gal	@250,000/mo.
Region					
Spain / Malaga	0.28	7.93	0.93	314	0.110
Germany / Saarland	0.40	12.12	1.41	719	0.089
Austria / Styria	0.56	6.72	1.33	450	0.059
lreland / Cork	0.36	8.28	0.93	229	0.057
France / Lorraine	0.52	10.20	0.93	469	0.076
Hong Kong	0.94	3.13	1.76	378	0.071
Central America	0.37	0.89	0.80	175	0.060
US / Guam	1.25	8.50	1.76	117	0.080
US / California	0.30	14.00	0.53	129	0.091
US / Idaho	0.25	9.10	0.60	105	0.036
US / Kansas	0.19	7.90	0.31	114	0.032
US / Kentucky	0.31	9.73	0.98	210	0.049
US / Minnesota	0.46	10.26	1.06	168	0.049
US / Texas	0	6.15	0.21	191	0.049

The ranges and distribution of the results are intuitively generally quite satisfactory. The costs of structures are highest in Hong Kong and Guam, the first because of high land costs the second because of high costs of imported construction materials and generally high wages. The costs of structures are lowest in regions with readily available facilities or generally low construction costs. One is led to doubt some of the labor costs reported, some (such as Styria) because they seem too low; others (such as Kentucky) because they seem high. Central American wages, based on virtually identical packets sent by two distinct development agencies, both located in Miami, and both implicated in the 1992 foreign aid scandal around U.S. subsidies to the movement of jobs abroad, detail the full range of fringe benefits included.²

The lowest level of variation is found among the proposed costs of electricity; but even there the highest cost region (Spain) was 3 times greater than the least cost (Kansas). Water costs showed greater-than-expected differences; but they were generally the cost component reported most consistently. Air freight costs showed some variation greater than expected (as between Kansas and Kentucky); but they will be illustrative, rather than definitive, in the analysis below.

Figure 1

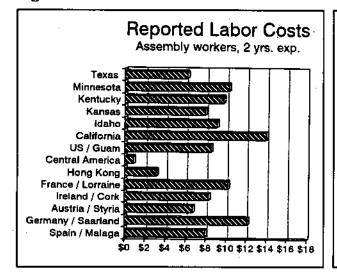
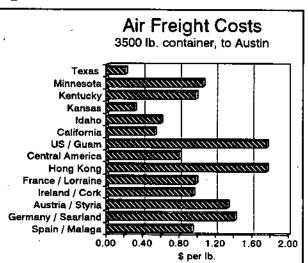


Figure 2



² See <u>Paying to Lose Our Jobs</u>, Special Report of the National Labor Committee Education Fund in Support of Worker and Human Rights in Central America (New York, September 1992).

Differences in simulated total production costs. If one uses the following plausible set of assumptions about levels of demand for the individual components of production, the 5-year total costs of the simulated assembly facility in each of the 14 regions appears in table 2. Labor is estimated at 200 workers in each of two shifts for an average of 260 days per year. Air freight includes only five 3500-pound containers per working day of activity at the plant for both input components and sub-assemblies returned to Austin. Water is assumed to be consumed only on days worked; electricity is a constant monthly total of 250,000 kwh, as specified in the original survey, with an assumed 75% load and demand at 500 Kw.

Table 2: Total Costs of Five Years of Production and Shipment

	<u> </u>				<u> </u>	
	Total	Total	Total	Total	Total	Total
	Structure	Labor	Air Freight	Water	Electricity	Project
·	Rent	Costs	Costs	Costs	Costs	Costs
Regions						
Spain / Malaga	2,001,600	16,500,000	21,248,500	1,225,205	1,650,000	42,625,305
Germany / Saarland	2,881,976	25,209,600	32,056,818	2,804,685	1,335,000	64,288,079
Austria / Styria	3,996,476	13,974,273	30,257,500	1,755,000	885,000	50,868,249
Ireland / Cork	2,574,000	17,225,000	21,612,500	891,429	857,143	43,160,071
France / Lorraine	3,716,814	21,212,389	22,295,000	1,828,858	1,141,593	50,194,155
Hong Kong	6,768,000	6,500,000	40,040,000	1,472,365	1,065,385	55,845,750
Central America	2,679,492	1,851,200	18,200,000	682,500	905,500	24,318,692
US / Guam	9,000,000	17,680,000	40,040,000	456,300	1,200,000	68,376,300
US / California	2,133,333	29,120,000	12,083,500	504,270	1,365,000	45,206,103
US / Idaho	1,800,000	18,928,000	13,650,000	409,500	540,000	35,327,500
US / Kansas	1,398,000	16,432,000	7,052,500	444,600	481,500	25,808,600
US / Kentucky	2,232,000	20,238,400	22,295,000	819,000	732,000	46,316,400
US / Minnesota	3,300,000	21,340,800	24,115,000	656,952	735,000	50,147,752
US / Texas	0	12,792,000	4,777,500	744,900	736,500	19,050,900

This simple simulation is illustrative on several levels. First, although there were very large differences in the relative wage levels across the regions (with the highest wage more than ten times the lowest wage), the total cost projections are much more sensitive to differences in air freight costs than to labor costs. This conclusion, comforting to geographers and regional scientists in principle, represents an important lesson for those who would be discouraged by the apparent superiority of absolutely low-wage sites distant from markets or subsequent points of processing, even for this industry that involves products that have very high value-to-weight ratios. The highest cost production site is Micronesian Guam, disadvantaged by high construction costs, high transport costs, and relatively high wages.

Table 3: Percentage distribution of five-year costs of production

	Structures	Labor	Freight	Water	Electricity	Total
Spain / Malaga	4.7%	38.7%	49.8%	2.9%	3.9%	100.0%
Germany / Saarland	4.5%	39.2%	49.9%	4.4%	2.1%	100.0%
Austria / Styria	7.9%	27.5%	59.5%	3.5%	1.7%	100.0%
Ireland / Cork	6.0%	39.9%	50.1%	2.1%	2.0%	100.0%
France / Lorraine	7.4%	42.3%	44.4%	3.6%	2.3%	100.0%
Hong Kong	12.1%	11.6%	71.7%	2.6%	1.9%	100.0%
Central America	11.0%	7.6%	74.8%	2.8%	3.7%	100.0%
US / Guam	13.2%	25.9%	58.6%	0.7%	1.8%	100.0%
US / California	4.7%	64.4%	26.7%	1.1%	3.0%	100.0%
US / Idaho	5.1%	53.6%	38.6%	1.2%	1.5%	100.0%
US / Kansas	5.4%	63.7%	27.3%	1.7%	1.9%	100.0%
US / Kentucky	4.8%	43.7%	48.1%	1.8%	1.6%	100.0%
US / Minnesota	6.6%	42.6%	48.1%	1.3%	1.5%	100.0%
US / Texas	0.0%	67.1%	25.1%	3.9%	3.9%	100.0%
Mean	6.7%	40.6%	48.1%	2.4%	2.3%	

The percentage distribution in five-year costs illustrates more clearly the wide variation across alternative sites. The costs of structures represent the greatest component of costs after wages and freight; water and electricity remain relatively very small proportions.

Tables 2 and 3, taken together, suggest that for any given plant location decision the differences in medium-term total project costs will be very great across different sites. The relative magnitude of differences and the differing structure of the five-year cost differences, even in this very simple example, is stunning.

Differences in incentive programs. Historically, location incentives in the U.S. have consisted of partial abatement of local property taxes, investment tax credits toward local corporate profit taxes, and a wide variety of cost-sharing programs for worker training. One conclusion reinforced by the data in tables 2 and 3 is the suggestion that these incentives, although hotly pursued by firms at the moment of decision, are not likely to have a significant effect on the total five-year cost of production.

If one moves from the examples with the smallest set of incentives to the examples with the largest, Hong Kong appears as the location which, consistent with its advertisements as one of the great bastions of free market processes, offers the least. The literature of the Hong Kong Economic & Trade Office provides many examples of services that it will provide to new investors (introductions to officials and to potential joint venture partners, and an ample flow of information on costs, prices, labor rates, etc.). The fixed corporate tax rate of 17.5% is low, and up to 60% of all "capital expenditure" may be written off against those taxes, with indefinite carry-forward. But, as we will see, this is a very low level of incentive by comparison with those provided in Europe.

Neither Honduras nor El Salvador, governed as they are by neoconservative administrations, offer direct financial subsidies to investment. But they offer investors an alternative advantage, in addition to very low wages: zero taxation. There is no corporate tax, no personal income tax,

no export tax, no tariffs on imports, and no property tax levied on investments in their respective "export processing zones." Sales within Central America will token 5% ad valorem duties, ree of the country examples analyzed here provide virtually no incentives beyond low or nonexistent taxation levels. Use of "aggressive tax planning," as noted in one location incentive brochure, would expand the importance of this taxation level; for transfer pricing schemes give significant tax advantages far beyond the level of actual production under such conditions to firms with plants and facilities in many places which are linked at some point to plants or facilities at these sites.

Competing regions in the U.S. provide a panoply of local, state, and federal investment incentives that vary widely. The survey encountered far more individual programs than we can list here, but the most aggressive proposals included the following:

- a) total coverage of the cost of structures through provision of a building (and remodeling) at no cost to the firm;
- b) totally free training of the workforce, as needed, at a local vocational training program;
- fixed hiring credits towards local taxes for workers hired out of certain categories;
- d) some venture capital from quasi-public sources (teacher retirement funds, etc.);
- e) industrial development bonds, issued by the local community, providing interest expense subsidies for both structures and equipment;
- f) and a variety of U.S. federal programs that vary little across states, including:
 - CDBG grants (\$500,000/year per community);
 - zero-tariff foreign trade zones;
 - SBA loans for small firms.

The highest levels of overall incentives, nonetheless, can be found among the European sites.

³ ENISA (Spain), <u>Investment Incentives</u>, 1993.

Much of the funding for them is provided by European Community regional adjustment programs that have been designed to offset the negative impacts on specific areas of the continuing European process of economic integration. The European Community spends more than \$8 billion each year on the combination of the European Fund for Regional Development (ERDF and the European Social Fund (ESF). The tangible impact of these adjustment programs, designed to ameliorate the pains of economic integration, can be seen in the incentives provided for new and expanded plants and for the modernization of existing plants.

Spain, for example, is able to offer direct subsidies covering from 25% to 75% of the *full development costs* of new projects in nearly 83% of its territory.⁴ All of Andalusia (where the Malaga example discussed above is located) qualifies for 50% subsidies, direct grants to the investors in any project exceeding 15 million pesetas (US\$115,000 in mid-1993). The grants are applicable to all of the following expenses:

- land acquisition, land development, and construction of all offices, laboratories, workers social facilities, warehouses, production buildings, industrial services buildings, and other construction related to the project;
- Production machinery, electricity infrastructure, generators, interior and exterior transport vehicles, control and measurement equipment, water purification equipment, environmental protection equipment, and other capital goods linked to the project;
- project engineering planning, and supervision;
- any research and development and the cost of other intangible assets linked to the project, so long as they don't exceed 20% of the total approved investment.

In addition, Arthur Andersen notes that Spanish national and regional state governments regularly provide full training programs for workers (beyond those funded by the European Social Fund), subsidized soft loans for the project at rates up to 8% below market rates, and state-owned venture capital firms that will invest for short start-up periods and, according to ENISA, "are usually made with a prearranged sale price back to the majority investor after three

⁴ ICEX (Spanish Institute for Foreign Trade) and Arthur Andersen Co., <u>A Guide to Business in Spain</u>, 1992.

years."5

It isn't only Spain the offers these dramatic levels of incentives. Ernst & Young have documented that comparable incentive programs tend to cover from 35% to 38% of the full capital investment in Italy and Ireland and from 40% to 48% in Greece, Spain, and Portugal.⁶ And the information provided in the survey for the State of Styria in Austria offered subsidized financing of up to 90% of the total project cost, free training of all labor needed, "silent partners" in the form of state venture capital with predetermined buyouts, and direct grants of 20% to 50% of total project cost for qualifying projects. Ireland adds to these subsidies a claim to the lowest corporate tax rate in Europe, 10% of corporate profits, a rate guaranteed to investors through the year 2010.

Conclusions. There are two points that emerge from this exercise. First, U.S. state and local economic development efforts can't come close to competing with European locations for highwage, high-tech employment without significant federal financing of regional training and adjustment programs. In the absence of truly competitive federal incentive programs, state and local efforts in the U.S. are forced into two truly contradictory dilemmas. They must raise local taxes to provide additional incentives, then exempt new firms from the higher taxes, at risk of driving away existing firms. And they must hope, against all the goals of true economic development, for large enough unemployment, little enough union organization, and bad enough local conditions for wages to remain as low as possible so that new firms are attracted.

A dynamic, proactive local economic development strategy under the conditions of global competitiveness described here, on the other hand, calls for federal leadership in the design and

⁵ Correspondence of 27 August 1993 with Charles Harrison, ENISA marketing director in San Francisco.

⁶ Ernst & Young, <u>The Regions of the New Europe</u>: <u>A Comparative Assessment of Key Factors in Choosing Your Location</u>, 1992, p.64.

funding of programs promoting adjustment to the consequences of economic globalization, including massively expanded re-training for those already out of the educational system, federally funded development incentives for areas disadvantaged by global restructuring, matched by innovative local efforts to improve workplace conditions, productivity, and profitability.

Appendix 1: The Survey Instrument

Michael E. Conroy & Associates Route 1, Box 115-A-9 Bastrop TX 78602

Phone: 512/321-5739; FAX: 512/471-3510

August 12, 1993

XXXX Organization

Via FAX:

Dear sir or madam:

I have been retained by a major transnational (Fortune 500) firm in the electronics industry to gather first-round information on potential sites for a new production facility. We are working with an extremely short deadline, so I would appreciate information in response to the following questions no later than September 20th.

The facility that is planned will be an electronics assembly plant which will employ 500 by the end of 1994, an estimated 1000 by the end of 1995, and further expansion that will depend on productivity and cost considerations at your location. Approximately 450 of the start-up employees will be medium-skill production line personnel, engaged in computer card assembly and testing. The remainder will be managerial and administrative personnel.

Please send me, as soon as possible, by fax or by courier mail, your standard package of critical information on labor markets and location incentives in your jurisdiction. I am also specifically interested in whatever information you may have in response to the following questions:

1. This firm anticipates needing approximately 40,000 sq.ft. of single-floor air-conditioned production space, expandable to 100,000 sq.ft. by the end of 1995. At what cost per square foot, or per square meter, could you provide this space under a 5-year lease, with purchase option? What are present costs per square foot, or per square meter, of new plant construction for an air-conditioned shell of 40,000 square feet with steel truss vault and sidewalls of either precast concrete or concrete block?

- 2. This firm will train workers who have had <u>some</u> experience in electronics assembly. What is the prevailing wage in your market for electronics production-line workers with two years or more of experience in the industry, including the standard benefits package required by law or traditional in your labor market? What is the approximate number of workers presently employed in electronics assembly and/or testing within 50 miles of your location.
- 3. This firm will need approximately 100,000 gallons per day of water for all purposes during the first phase of the proposed project, and up to 300,000 gallons per day by the end of 1995. At what price is that water presently available?
- 4. This firm expects to consume approximately 250,000 kilowatt hours of electricity per month. At what price per kwh is electricity presently available for firms with that scale of consumption?
- 5. What is the present rate of property taxation for industrial facilities in your jurisdiction? What is the most attractive tax abatement that has been granted in recent years? And what might this firm expect to receive by the end of 1993?
- 6. What public financing might be available for the costs of plant construction, the purchase of plant equipment, or the training of workers for this facility?
- 7. What national or federal incentives (profit or income tax discounts, export tax rebates, etc.) are available for firms in the electronics industry that will export 80% to 90% of their production?
- 8. What is the present cost of air freight shipment from your site to Austin, Texas, of a standard air freight container weighing approximately 3,500 pounds?
- 9. Please describe present restrictions on the quality of plant effluent water, especially with respect to the standard effluents of electronics manufacturing?
- 10. What other location incentives can you offer?

Please note that your site cannot be considered in the first round, and will not be considered in subsequent rounds, unless we receive this information by I will be happy to send you a copy of the comparative incentive matrix by the end of the month if you indicate your interest. Thank you in advance for the time and effort this request may cost you and your staff.

Sincerely,

Michael E. Conroy, CEO