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ABSTRACT

This paper offers a vision of the future of trade in manufactured products between Mexico and the United States. This vision is formed from a study of the 1970 and 1985 trade patterns of OECD countries. The vision accounts directly for the proximity of Mexico and the United States, and also for the continuing wage gap between Mexico and the United States. The vision accounts indirectly for the declining level of trade barriers and for the technological improvements that are probable in a liberalized Mexico.

Based on the OECD trade patterns, an emerging Mexico will present U.S. export opportunities that are a significant fraction of current U.S. production of transportation equipment, chemicals and machinery. But Mexican exports are likely to displace a substantial amount of U.S. production of apparel, footwear, pottery and leather products.

This vision which is formed using 1985 data does not offer an entirely accurate description of the changes in trade between Mexico and the United States that have occurred between 1985 and 1992. It is possible that the vision is defective, but it is also possible that the Mexican liberalization is incomplete, is in its infancy, and is still under serious threat of reversal.

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This paper offers a vision of the future of trade in manufactured products between Mexico and the United States. This vision is formed from a study of the 1970 and 1985 trade patterns of OECD countries. Four important factors determine this vision:

(1) The proximity of Mexico and the United States.

(2) The continuing wage gap between Mexico and the United States.

(3) The declining level of trade barriers internal to Mexico as well as between Mexico and the United States.

(4) Technological improvements in Mexico.

Section one comments on the four principles on which the vision is formed. Section two reports evidence gleaned from the 1970 and 1985 trade patterns of the OECD countries. Distance is shown to have a very clear and very important effect on trade patterns, especially for the European countries. The effect on trade of wage differences between

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countries is not so apparent in some commodities but is very clear in others. For example, apparel is distinctly an "upstream" manufacture: produced in low-wage countries and sold in high-wage countries. Trade barriers and technological improvements are much more difficult to quantify since adequate data sets regarding both are difficult to come by. These two effects are collapsed into a Latin American effect in the statistical analysis. Mexican liberalization and a North American Free Trade Agreement are hypothesized to remove this Latin American effect from the Mexican data. Roughly speaking, this makes Mexican trade with the United States similar to trade between others pairs of countries that are close to each other and that have substantial wage differences, for example, the low-wage countries and high-wage countries in Europe.

Finally, Section 4 reports a reality check. The vision formed from the 1985 data is checked against the actual data for the period from 1985 to 1992. As it turns out, the vision seems to have some validity over this period, but the difference between the forecast and the real outcomes is very substantial. One possibility is that the vision is confused. Another possibility is that the Mexican liberalization has yet to show itself very much in the trade data. The vision is based on the unsupported assumption that the Mexican liberalization would be fully in place and fully adjusted to by the year 2002, ten years from now and seventeen years after the process of liberalization began. The evidence suggests that the pace of liberalization is much slower than this. Mexicans will not look like Asians in 17 years. It may take 100 years. (Economically speaking, of course.)

1.0 PRINCIPLES

Here are the principles on which I will form my visions:

(1) Distance matters. Mexico and the United States have something that most other pairs of countries lack: they are located close to each other. Mexico has a substantial locational advantage over low-wage Asian locations of production for selling in the U.S. marketplace. And the United States has a substantial locational advantage over European and Japanese locations of production for servicing the emerging Mexican market. This is an important consideration because some commodities travel easily for great distances and others are traded only very locally.

(2) Resource supplies matter. Mexico is endowed with a great abundance of low-skilled labor, and comparatively little high-skilled labor and capital. The United States is comparatively rich in human skills and in capital. California, a state that is especially close to Mexico, has a bimodal distribution of skills: California is richer even than the United States in human capital, but California (especially Southern California) also has a significant number of unskilled workers who find employment in certain labor intensive manufactures like apparel and also in the local service sector. Trade directed by a free market system will be organized around the comparative advantage of each region, with labor abundant Mexico exporting labor-intensive products like apparel and footwear to the United States in exchange for products like machinery and chemicals that require more human skills and more capital to produce. It is not just labor-intensive commodities that will be produced in Mexico. The closeness of Mexico to the United States will allow more geographical dispersion of production with low-skilled labor-

intensive assembly work being done in Mexico and the rest of the manufacturing process carried on inside the United States.

These changes will be very beneficial to the United States overall, but jobs in the low-skilled labor-intensive tradeable goods sectors will be hard hit. Our low-skilled workers have historically been somewhat protected from the abundant Asian low-skilled low-wage labor force by the scarcity of capital in Asia and by the long distances. As Asian productive capacity has increased dramatically over the past several decades, our low-skilled workers in many sectors feel more and more competition from low-paid Asians. But the protective effect of distance has remained important in many other products. Now, with a liberalized Mexico, our low-skilled workers lose much of their locational advantage, except in the local (nontraded) service sector. High wages for these workers are sustainable if there are enough earnings in the skill-intensive manufacturing sectors to generate adequate demand for local labor-intensive services. But communities with large numbers of low-skilled workers, such as Southern California, may not generate enough local demand to support high wages for unskilled workers. In those communities, the widening of the gap between rich and poor will be accelerated by the emergence of Mexico.

(3) Trade barriers matter. Mexico's economic future is very heavily dependent on access to U.S. markets. The Asian economic miracles were built on exports to the United States, and it is highly unlikely that Mexico will repeat the Asian experience without also having that access. But U.S. markets are becoming crowded with products from a diverse group of low-wage exporters, and, in response, the United States is edging toward protectionism. Mexico may somehow manage to shoulder its way

through the crowd of low-wage competitors only to find the door to the U.S. marketplace closed. For that reason, the North American Free Trade Agreement is absolutely crucial to Mexico. If NAFTA had not been put on the table, investors from around the world would have been left to guess how much more severe will become U.S. protectionism, and how much of it will be pointed at an emerging Mexico. Many investors might have been willing to bet that Mexican products in the future would be given adequate access to the U.S. marketplace. But with NAFTA on the table, we are basically making this decision today rather than tomorrow. Are we, or are we not, going to guarantee Mexican access to the U.S. marketplace in the future? If we say no, isn't that because we are deciding in advance that barriers will be erected as soon as Mexico is economically successful enough to be a force in the U.S. markets? Such barriers would be a devastating blow against the Mexican liberalization and I therefore believe that outright rejection of NAFTA would do terrible harm to the Mexican economy.

(4) Technology matters. Competition is the primary carrier of technological progress. Trade barriers like the ones inflicted on the Mexico economy which are severe and in place for decades isolate domestic producers who cling to old technologies that become more and more out of date over time. Where in the world are 1930 automobiles (VW bugs) still being produced? Answer: Mexico. If the Mexican liberalization is successful, then Mexico should also experience large increases in productivity as modern technologies are adopted. This has certainly been the case in Asia. The Asian economic miracles in Japan and Korea and Taiwan have depended importantly on high rates of capital accumulation, but with these high rates of growth of capital has come

very high rates of growth of "total factor productivity," the economist's euphemism for technical progress.

Technological improvements will make the Mexico of the future appear a lot bigger than today. Mexico now has a GNP that is only 4% of the U.S. GNP, a fact which gives comfort to U.S. proponents of NAFTA since it is hard to imagine that such a small economy could have much effect on the colossal economy of the United States. But the working age population in Mexico is 30% of the U.S. population. Moreover, the U.S. workforce is middle-aged, aging and growing slowly, but the Mexican workforce is youthful and growing at a hefty but unhealthy 3% clip. A combination of high rates of capital formation, high rates of growth of labor and high rates of growth of total factor productivity could generate very high rates of GNP growth in Mexico compared with the United States. But don't be too alarmed. These forces are important but history does not suggest that they operate rapidly. A fairly extreme scenario judged by the Asian experience would have Mexican real GNP growth averaging 7% annually over the next decade, outperforming a sluggish U.S. economy that averages only 2% real growth. This would imply that the Mexican GNP would double in a decade and the U.S GNP would increase by 20%. Then the Mexican GNP would rise from 4% to 7% of U.S. GNP, perhaps not an enormous change.

Technological improvements in Mexico are likely to lead to substantial increases in productivity but this takes a considerable amount of time to have much bite - more than a decade. There is another important sense in which technology matters. The technological backwardness of the Mexican economy is not uniform across all tradeable goods. Until the international technologies are substantially absorbed

into the Mexican economy, the most technologically backward sectors will be at a comparative disadvantage in competition with foreign producers even though Mexican wages are much lower.

Flows of technology can therefore make the initial period following a liberalization very different from later phases. The Mexican liberalization that began in 1985 has truly been immense and should ultimately redirect productive resources into activities of genuine long-run international comparative advantage, namely the labor intensive sectors. This implies that sectors like chemicals, and vehicles and even iron and steel will eventually face hard times in Mexico if the liberalization allows free competition for the Mexican market from U.S. producers. The Mexican beneficiaries of liberalization eventually will be the labor intensive sectors such as apparel, footwear and possibly textiles. But in the short run, even the labor-intensive manufacturing sectors may face serious retrenchment because technological backwardness may more than offset the wage advantage.

But, you may object, a country has to export something in order to pay for imports. Not necessarily is the reply, and even if true, the country doesn't have to sell manufactures. A credible liberalization can induce a substantial trade deficit as foreigners pour investment funds into the country to take advantage of the new opportunities. These investment funds can greatly reduce the need to supply exports today to pay for today's imports. Furthermore, the products that a country chooses initially to export after a liberalization are the ones that are not impaired much be technological backwardness. These are often raw materials and agriculture products. Thus what we should expect in the short run is a substantial trade deficit, an increase in

imports in manufactures across the board but especially in capital goods, and an increase in exports of raw materials and agricultural products. Later, when the Mexican technology is closer to the world frontier, there should be large increases of exports of labor-intensive products to pay back the foreign loans and to pay for continuing imports of capital-intensive manufactures.

2. EVIDENCE

There is ample evidence of the validity of these four principles. In this section, I present evidence regarding the first two.

(a) Distance

The first principle on which my vision rests is that distance matters. There is abundant evidence of this. Referring to Table 1, the number one and number three trading partners of the United States in 1991 were our neighbors, Canada and Mexico, together totalling 22 per cent of U.S. trade. Mexico places third ahead of Germany and the United Kingdom despite having a much smaller level of GNP and an even smaller external sector.

Frankly, I was surprised by the data reported in Table 1. During the short period of time from 1987 to 1991 Mexico moved from our number six trading partner to our number three partner. That is an important fact, but there is something else in this table that I want to draw your attention to. As you are aware, NAFTA proponents on the U.S. side have made a big deal out of the trade surplus that has developed with imports from Mexico in 1991 of $23b more than offset by $28b in exports. But the real news in Table 1 is not the high rate of growth of exports to Mexico but rather the high rate of growth of imports. The high rate of growth of exports to Mexico is not all that different from our

experience with many of our other trading partners. We had a badly overvalued dollar in 1985, and a huge trade deficit that was partially corrected by a dollar devaluation which led to rapid export growth and slow import growth with almost all of our partners. The two exceptions to this general rule are on the import side. Our imports from Mexico have grown over the 1987-91 period at a rate of 14% per year, which is much higher than the 2%-6% rate of growth of imports from most other partners. The other exception is Mainland China which has racked up the extraordinary 35% growth rate. I think it is fair to surmise that Mexico and the Chinese Mainland are on an economic collision course. Guess where that collision is going to occur and who is going to be caught in the middle of it?

The concentration of trade between neighbors is not a special feature of U.S. trade. Table 2 reports adjacency percentages for trade of 22 OECD countries with each other and with their trading partners.[3] The data base excludes trade between non-OECD countries, which of course forms a relatively small share of total world trade. Using these 1970 OECD data, 31% of trade took place between adjacent countries. This figure declined to 28% by 1985, largely because of the rise of the great Asian trading nations of Japan, Korea and Taiwan.

The commodities in Table 1 are ordered by their adjacency effect in 1985 with commodities that tend to be traded by adjacent countries at the top. The closeness of Mexico with the United States, particularly northern Mexico with California and Texas, creates a mutual comparative advantage in the commodities that don't travel well, namely those at the

[3] These countries are: Australia, Austria, Belgium-Luxembourg, Canada, Denmark, Finland, France, Germany(Fed.Rep.), Greece, Iceland, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Spain, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States.

top of the list. The list is headed by Wood Products which has 42% of trade between adjacent countries. The top four categories are all wood related, which presumably do not travel well because of the bulkiness of the product compared with its value. At the bottom of the list are commodities with the weakest adjacency effects. These are the goods that now come from Asia: Apparel, Footwear and Electrical Machinery.

Frankly, I have been surprised by how strong is the adjacency effect. I have also been surprised how little change has occurred over the fifteen year period from 1970 to 1990. I really expected there to be a sharp reduction in distance as a deterrent to trade over the fifteen years from 1970 to 1985. Judged by the adjacency effects in Table 1, there was little decline in the effect of distance on trade flows. The adjacency effect is noticeably weaker in Leather Products, Wearing Apparel, Electrical Machinery, and Professional and Scientific Equipment. But in the opposite direction, the adjacency effect has become noticeably stronger in Wood Products, Food Manufactures, and refined Petroleum products.

Distance between partners as well as adjacency has a very substantial effect on trade. This is revealed by the data reported in Table 3 which reports the distance between countries that is necessary to include 50% of trade for each of the ISIC categories.[4] For example, referring to the first entry in Table 3, we see that 50% of trade in furniture takes place between countries that are less than 645 miles apart, and that this distance includes only 4.9% of the country pairs, far below the 50% that we would expect if distance had no effect.

[4] Trade between a pair of countries is divided by the product of their GNP's in order to control for the country size effect.

Table 3 is sorted to place the commodities that didn't travel well in 1985 at the top of the list. Table 3 is similar to Table 2, but there are some interesting exceptions. Furniture is at the top in Table 3, and is number 4 in Table 2. But Wood Products, which has the strongest adjacency effect in Table 2 is way down the 50% percentile list in Table 3. In words, wood products tend to be traded by neighbors, but once the adjacency advantage is overcome, wood products travel long distances rather well.[5] For products of petroleum refineries, the effect is in the opposite direction. It is not so important to be adjacent, but refined petroleum does not travel very long distances.

The last column of Table 3 compares the distance effect in 1985 with the distance effect in 1970. A number in excess of one means that the commodity travelled longer distances in 1985 than in 1970. The commodities that travelled much farther in 1985 were, in order,: Leather, Apparel, and Other Manufactures, the latter category including jewelry, musical instruments, and athletic goods. Shoppers in the United States must surely be aware how many of these items come now from far-away places, namely Asia. But I suspect that most of us are unaware that there are some products that do not travel as well as they once did. Listed in order, these are: Petroleum Refined products, Coal, Food, Beverages and Transport Equipment. The message here is an important one: <u>if you think that distance is becoming much less important in determining trade patterns, you are mistaken</u>. It is true that you are consuming more products that come from far-away places, but

[5] Perhaps another way of putting this is that some wood products do not travel well but others are able to overcome the deterrent effect of distance.

your inference that this is occurring because of a declining effect of distance is not entirely incorrect. Rather what has been happening is a sharp increase in productive capacity at locations on the globe that are economically distant from the United States, namely Europe and Asia. Thus: Globalization has come largely from geographic dispersal of economic activity, not from a shrinking globe.

These tables make very clear that distance matters, but they do not get directly at the task: what kind of trade pattern should we expect between the United States and an emerging Mexico? Specifically, how much does distance depress trade? Toward that end I will now provide estimates of the "half-distance" of trade defined as the number of miles between trading partners that is enough to reduce trade by fifty per cent. The initial or minimum distance will be taken to be 86 miles, the distance between the economic centers of Belgium and the Netherlands, which is the minimum distance in our sample. Be careful to realize that we are now asking a question that sounds similar but which is very different from the one answered in Table 3. That table indicates how large must the distance be to include countries that together engage in 50% of trade. Now we are asking how far apart must a pair of countries be in order to reduce trade between them by 50% if initially they were only 86 miles apart.

To get prepared for the results now to be discussed, ask yourself what is the typical half-distance of trade. Think about two hypothetical population centers that are about 86 miles apart. How much trade do you think occurs between them? Next imagine that they are moved farther apart. How far apart must they be to reduce trade by a factor of two? In this age of airplanes and electronics you probably

think that the number might by 1000 miles or more. OK, now take a look at Figure 1 which is a graph comparing West German trade and distance to trading partner for a variety of partners in 1985. On the horizontal axis is the distance between West Germany and its partners. On the vertical axis is the GNP-adjusted level of German trade with the partner. Both scales are logarithmic. In this figure there is a very pronounced effect of distance. At about 1000 miles, the total German trade with a partner is about 10% of partner GNP. At 10,000 miles, the trade declines to only 1% of partner GNP. Thus if you increase distance by a factor of 10, you reduce trade by the same factor. In the parlance of economists, the distance elasticity is said to be about -1. Actually, the distance effect is a little bit weaker than this. A formal regression estimate of the elasticity is -.68. If the elasticity were -1, the "half-distance" would be 2×87 = 174 miles. But since the distance effect is not quite as strong, it takes 237 miles to reduce trade by a factor of two from the level applicable to countries that are 87 miles apart.

U.S. trade, illustrated in Figure 2, is very different from German trade because the distance effect is not nearly so transparent. The reason for this, I believe, is that the U.S. economy does not represent an ideal experiment for determining the effect of distance. Using our measure of distance, the U.S. has only one close trading partner: Canada. Our measure of distance has Mexico 2200 miles from the U.S. The other trading partners are so far away that none of them has a clear locational advantage for access to the U.S. market. In addition, the United States is geographically enormous with 3000 miles separating one coast from the other. The distance effect should evidence itself in

terms of regional trade patterns with much trade between Boston and New York and Montreal but not much between these cities and Southern California. Thus what I am arguing is the lack of a clear effect of distance on U.S. trade with its partners does not mean that distance doesn't matter. On the contrary, the European trade pattern is pertinent when thinking about trade among states of the United States, Mexico and Canada. Southern California and Texas are economically close to northern Mexico. Chicago and New York and Toronto are very, very far from Mexico City.

But how close and how far? Table 4 contains a commodity-by-commodity summary of the effect of distance on trade in 1985 based on a simple model that adjusts trade by the economic size of the country, and explains the adjusted trade in terms of an adjacency effect and also the distance between trading partners. The results are reported in Table 4 in terms of distances that eliminate a certain per cent of trade. These distance numbers include the initial 86 miles. When the number 86 is reported this means that merely eliminating the adjacency effect reduces trade by more than the indicated amount. For example, in the case of metal scrap, eliminating the adjacency effect reduces trade by more than 50% and the numbers in Table 4 for the 10% and the 50% are therefore both the minimum distance 86.

What you should find startling in this table is how small are the distances that eliminate the vast majority of trade. Half of trade is eliminated in every commodity class by a distance of only 425 miles. Ninety per cent of trade is eliminated in every commodity by only 1500 miles. The message here is important; NAFTA is not a free trade agreement between Canada, the United States and Mexico. It is really a

free trade agreement between northern Mexico, California and Texas. The implications of NAFTA extend northward beyond Texas and southern California not because much commerce will be done between the northern states and Mexico but rather because these northern states and Mexico will compete against each other in Texan and Southern Californian marketplaces.

Incidentally, the importance of distance as a determinant of commerce implies that the effect of the Mexican liberalization will be increasingly slight as one moves south away from the U.S. border. In particular, the northern states of Mexico can expect greatly increased demand for labor, which will induce substantial wage increases and concomitant migration away from southern Mexico.

The United States and Mexico, other things equal, have a mutual comparative advantage in the products that don't travel well, namely those at the top of the list of Table 4. These are Metal Scrap, Miscellaneous Petroleum Products, Wood Products and Transportation Equipment. One thing that has always bothered me about the Maquiladoras is the amount of vehicle production that is being done in comparison with apparel and footwear. The latter are the labor-intensive goods that are the products of choice for the emerging low-wage countries of Asia. These same low-wage Asian countries have not been much in the business of producing transportation equipment. Why would Mexico be different? One possible explanation lies in Table 4. The comparative advantage conveyed by closeness is very significant in Transportation Equipment. Because Mexico is close to the U.S. market, it is possible to employ low-wage Mexicans in the labor-intensive assembly operations of vehicle production. It is not possible to employ low-wage Asians for

the same activity because they are so far away. On the other hand, Mexican locations of production of apparel have to compete with the low-wage Asian producers. This competition may force them into activities in which the closeness advantage matters, vehicle assembly being one choice.

(b) Resource supplies matter; the wage difference. The second principle on which my vision rests is that the wage difference between Mexico and the United States will have a significant effect on shaping the trade between these countries. Evidence concerning the influence of wage differences is reported in Table 5. To form this table, countries are sorted into high-wage and low-wage groups, separated by the median wage level. Then commodities are sorted in terms of the primary direction of trade. "Upstream" trade goes from low-wage exporters to high-wage importers, "downstream" trade goes in the opposite direction. "High-wage" trade involves a high-wage exporter and a high-wage importer. "Low-wage" trade takes place between two low-wage countries.

Referring now to Table 5, we see that 29.3% of trade in printing and publishing took place between low-wage countries, and 42.9% took place between high-wage countries. Only 7.9% was upstream trade and 19.8% was downstream trade. These numbers have to be interpreted with a bit of care. First of all they refer to "GNP-adjusted" trade which corrects the trade flow by the economic size of the partners, specifically by dividing by the product of their GNP's. This obviously makes the economically smaller countries more important. The reason for doing this is to isolate the pure wage effect, controlling for country size.[6]

[6] In the statistical analysis soon to be discussed, the country size effect is controlled by including GNP as an explanatory variable.

Table 8
U.S. Imports from Mexico, Actual and Predicted
Millions of Dollars

	Actual	Predicted				Increase		Annual Growth	
Commodity	1985	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Tobacco	5	0	0	0	0	-98%	-99%	-20%	-16%
Metal scrap	23	1	2	3	5	-95%	-93%	-11%	-8%
Misc. petro	24	1	2	5	20	-95%	-93%	-8%	-1%
Elec. mach.	3,296	38	616	1,601	3,699	-99%	-81%	-4%	1%
Paper	27	1	6	14	34	-96%	-76%	-4%	1%
Petroleum	797	31	117	450	980	-96%	-85%	-3%	1%
Nonferrous met	347	51	113	285	673	-85%	-68%	-1%	4%
Glass	143	4	46	135	436	-98%	-68%	-0%	7%
Beverage	143	19	58	148	416	-87%	-59%	0%	6%
Other food	25	56	18	27	50	127%	-29%	0%	4%
Other non-met	225	5	102	262	709	-98%	-55%	1%	7%
Prof. & Scien.	197	2	108	267	813	-99%	-45%	2%	9%
Food	556	2,208	585	844	1,060	297%	5%	2%	4%
Transport equip	1,620	82	770	2,517	7,738	-95%	-52%	3%	10%
Other chem.	55	3	52	126	368	-94%	-6%	5%	12%
Machinery	647	20	636	1,772	4,729	-97%	-2%	6%	12%
Ind. Chemicals	471	138	611	1,608	4,056	-71%	30%	7%	14%
Wood	90	2	172	350	400	-98%	90%	8%	9%
Furniture	181	3	351	889	1,680	-98%	94%	10%	14%
Plastics	93	3	243	600	1,306	-97%	160%	12%	17%
Fabricated met	180	5	772	1,970	4,063	-97%	328%	15%	20%
Leather	47	15	208	587	1,038	-69%	339%	16%	20%
Rubber	19	0	94	239	541	-98%	402%	16%	22%
Iron & steel	129	39	514	1,738	5,526	-70%	298%	17%	25%
Printing	19	4	116	315	692	-81%	512%	18%	24%
Other manufac.	119	16	1,095	2,709	5,445	-86%	818%	20%	25%
Footwear	84	3	872	2,389	3,449	-97%	933%	22%	24%
Pottery, china	28	11	315	942	1,785	-60%	1025%	23%	28%
Textiles	91	78	1,707	4,213	5,959	-14%	1779%	25%	28%
Wearing App.	292	21	8,362	19,467	18,961	-93%	2762%	28%	28%
TOTAL	9,974	2,861	18,662	46,471	76,633	-71%	87%	9%	13%

SCENARIOS

(1) 1985 Predicted
(2) 1985 Predicted without Latin American Effect
(3) 2002 Prediction, Mexican Low-Growth Scenario

	GNP	Pop.	Wages
U.S.:	same as world		0.0%
Mexico:	3.0%	2.5%	0.0%

(4) 2002 Prediction, Mexican High-Growth Scenario

	GNP	Pop.	Wages
U.S.:	same as world		0.0%
Mexico:	5.0%	2.5%	2.0%

Table 7
U.S. Exports to Mexico, Actual and Predicted
Millions of Dollars

	Actual	Predicted				Increase		Annual Growth	
Commodity	1985	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Nonferrous met	197	303	1,997	4,066	5,194	54%	916%	20%	21%
Transport equip	2,000	6,723	20,357	36,367	44,426	236%	918%	19%	20%
Paper	322	887	2,692	3,907	4,231	175%	735%	16%	16%
Ind. Chemicals	1,286	5,077	8,658	15,449	18,704	295%	573%	16%	17%
Prof. & Scien.	337	591	1,750	3,150	4,450	75%	419%	14%	16%
Iron & steel	199	359	1,084	1,852	1,965	80%	445%	14%	14%
Printing	38	67	218	345	492	78%	482%	14%	16%
Fabricated met	250	497	1,447	2,236	2,642	99%	479%	14%	15%
Tobacco	1	1	7	9	12	-12%	532%	14%	15%
Wood	74	49	365	631	1,180	-33%	394%	13%	18%
Machinery	2,068	3,998	9,544	16,213	20,808	93%	361%	13%	15%
Petroleum	235	451	749	1,440	1,855	92%	218%	11%	13%
Textiles	185	43	682	1,082	1,322	-77%	269%	11%	12%
Elec. mach.	2,135	1,745	6,677	11,384	14,674	-18%	213%	10%	12%
Other non-met	55	52	171	291	301	-5%	210%	10%	10%
Pottery, china	15	10	48	77	97	-34%	223%	10%	12%
Misc. petro	28	18	96	135	145	-36%	248%	10%	10%
Other chem.	131	346	380	623	856	163%	189%	10%	12%
Metal scrap	133	63	222	473	903	-53%	66%	8%	12%
Furniture	122	64	249	417	626	-48%	104%	7%	10%
Other manufac.	79	33	143	241	385	-58%	80%	7%	10%
Leather	15	1	24	40	65	-96%	53%	6%	9%
Food	441	86	671	1,077	1,422	-81%	52%	5%	7%
Other food	21	13	30	47	64	-36%	45%	5%	7%
Plastics	108	30	116	180	249	-72%	8%	3%	5%
Glass	33	7	21	33	46	-79%	-36%	-0%	2%
Rubber	139	46	82	120	176	-67%	-41%	-1%	1%
Beverage	1	0	0	1	1	-78%	-67%	-5%	-2%
Footwear	36	1	7	11	18	-97%	-81%	-7%	-4%
Wearing App.	164	9	31	49	85	-95%	-81%	-7%	-4%
TOTAL	10,850	21,567	58,520	101,949	127,393	99%	439%	14%	16%

SCENARIOS

(1) 1985 Predicted
(2) 1985 Predicted without Latin American Effect
(3) 2002 Prediction, Mexican Low-Growth Scenario

	GNP	Pop.	Wages
U.S.:	same as world		0.0%
Mexico:	3.0%	2.5%	0.0%

(4) 2002 Prediction, Mexican High-Growth Scenario

	GNP	Pop.	Wages
U.S.:	same as world		0.0%
Mexico:	5.0%	2.5%	2.0%

Table 6
Estimated Effect of Wages on the Direction of Trade
Trade Among Otherwise Identical Low-wage and High-wage Countries

	Per Cent in Each Direction				
	Low-Low	High-High	Low-High	High-Low	HL:LH
Low-wage commodities					
323 LEATHER	29.9	41.1	25.0	4.1	-6.1
High-wage Commodities					
331 WOOD	0.8	96.5	0.6	2.0	3.2
332 FURNITURE	0.9	89.3	4.6	5.2	1.1
354 MISC. PETR.	4.5	82.9	0.5	12.1	25.8
314 TOBACCO	1.4	76.3	0.6	21.8	38.2
352 OTHER CHEMICALS	10.6	74.8	1.9	12.7	6.8
353 PET. REFINERIES	7.0	70.8	7.4	14.8	2.0
355 RUBBER	10.3	63.5	11.4	14.8	1.3
381 METAL PRODUCTS	6.0	56.7	8.2	29.0	3.5
371 IRON & STEEL	10.6	50.7	15.4	23.3	1.5
369 OTH NON-METALLIC	10.0	48.4	20.8	20.8	-1.0
356 PLASTIC NEC	11.0	46.3	25.5	17.2	-1.5
362 GLASS	21.2	45.7	26.9	6.2	-4.4
Upstream Commodities					
322 APPAREL	2.3	9.0	86.3	2.4	-35.3
311 FOOD	7.8	1.3	54.0	36.9	-1.5
321 TEXTILES	15.8	10.1	47.0	27.2	-1.7
313 BEVERAGES	9.1	46.8	43.5	0.6	-68.3
324 FOOTWEAR	8.7	47.6	42.3	1.4	-30.2
390 OTHER MANF.	6.1	38.1	41.8	14.0	-3.0
312 OTHER FOOD	22.2	21.0	36.0	20.8	-1.7
361 POTTERY	8.4	55.7	31.0	4.9	-6.3
Downstream Commodities					
380 METAL SCRAP	1.7	15.5	1.0	81.8	83.4
383 ELEC. MACH.	5.7	30.7	6.1	57.5	9.5
341 PAPER	1.6	53.1	0.3	45.0	176.3
351 CHEMICALS	10.6	42.1	7.0	40.3	5.8
384 TRANSPORT EQUIP.	0.7	57.8	1.3	40.3	32.0
372 NON-FERROUS MET.	3.9	51.8	4.8	39.5	8.2
382 MACHINERY	3.2	60.9	1.6	34.2	20.9
385 PROF., SCR., MEAS.	1.5	66.2	1.3	31.1	24.3
342 PRINTING	5.3	52.7	11.6	30.4	2.6

Note: Estimated from regressions of log(Exports*Dist/GNPx GNPm)
on full quadratic function of importer and exporter wage.
Direction of trade computed using U.S. and Mexican wages.

Table 5
Wage-Direction of GNP Adjusted Exports, 1985

	Per Cent in Each Direction				Ratios to Country Concentration				
	LL	HH	LH	HL	LL	HH	LH	HL	HL:LH
LOW LOW									
362 GLASS	29.3	42.9	7.9	19.8	1.59	2.33	0.25	0.63	2.5
323 LEATHER	27.9	21.3	28.9	21.9	1.51	1.15	0.92	0.70	-1.3
369 OTHER NON-META	27.6	40.9	8.9	22.6	1.49	2.21	0.28	0.72	2.5
372 NON-FERROUS ME	24.8	33.9	24.9	16.4	1.34	1.84	0.79	0.52	-1.5
371 IRON & STEEL	23.1	39.6	8.9	28.4	1.25	2.15	0.28	0.90	3.2
342 PRINTING	22.0	53.1	8.7	16.2	1.19	2.88	0.28	0.51	1.9
361 POTTERY	20.2	37.7	24.6	17.5	1.09	2.04	0.78	0.55	-1.4
HIGH HIGH									
332 FURNITURE	3.2	72.8	11.9	12.0	0.18	3.94	0.38	0.38	1.0
356 PLASTIC NEC	9.8	61.8	12.5	15.9	0.53	3.35	0.40	0.51	1.3
354 MISC. PETR. & COA	8.1	57.2	7.5	27.3	0.44	3.10	0.24	0.87	3.7
314 TOBACCO	14.2	57.1	3.5	25.2	0.77	3.09	0.11	0.80	7.2
385 PROF., SCI., MEAS.	5.4	55.9	7.6	31.1	0.29	3.03	0.24	0.99	4.1
380 METAL SCRAP	5.4	54.6	22.9	17.2	0.29	2.96	0.72	0.55	-1.3
381 METAL PRODUCTS	11.7	53.6	8.8	25.9	0.63	2.91	0.28	0.82	3.0
353 PETR. REF.	16.2	53.3	19.2	11.3	0.88	2.89	0.61	0.36	-1.7
355 RUBBER	8.9	50.1	18.1	22.9	0.48	2.71	0.57	0.73	1.3
331 WOOD	17.2	44.9	21.7	16.2	0.93	2.43	0.69	0.51	-1.3
383 ELECT. MACH.	9.0	44.0	16.0	31.0	0.49	2.38	0.51	0.98	1.9
321 TEXTILES	12.1	37.0	29.8	21.1	0.66	2.01	0.94	0.67	-1.4
LOW HIGH									
322 APPAREL	4.4	35.7	55.3	4.6	0.24	1.94	1.75	0.15	-12.0
324 FOOTWEAR	9.8	31.6	52.6	6.0	0.53	1.71	1.67	0.19	-8.7
311 FOOD	13.7	25.2	37.7	23.4	0.74	1.36	1.20	0.74	-1.6
313 BEVERAGES	8.7	32.4	36.0	22.9	0.47	1.75	1.14	0.73	-1.6
HIGH LOW									
312 OTHER FOOD	3.8	34.9	11.8	49.4	0.21	1.89	0.37	1.57	4.2
390 OTHER MANUF.	3.3	31.8	26.2	38.6	0.18	1.72	0.83	1.23	1.5
384 TRANSPORT EQUIP	9.4	43.4	9.2	38.0	0.51	2.35	0.29	1.20	4.1
352 OTHER CHEMICAL	11.3	46.1	5.4	37.2	0.61	2.50	0.17	1.18	6.9
351 CHEMICALS	9.4	45.4	10.2	35.0	0.51	2.46	0.32	1.11	3.4
382 MACHINERY	6.8	51.3	8.0	33.8	0.37	2.78	0.25	1.07	4.2
341 PAPER	11.2	48.8	7.2	32.8	0.61	2.64	0.23	1.04	4.5
Average	12.9	44.6	18.4	24.1	0.7	2.4	0.6	0.8	1.3
Country Conc.	18.5	18.5	31.5	31.5					

Note: High- and Low-wage Countries Defined Relative to Median Wages
HL:LH compares HL to LH; see text

Table 4
Estimated Effect of Distance on International Trade
Distance Percentiles of Trade:1985

SECTOR		Distance that eliminates x% of trade 10%	50%	90%
313	METAL SCRAP	86	86	250
324	MISC. PETR. & COAL	86	101	325
341	WOOD	86	112	826
322	TRANSPORT EQUIP.	86	113	436
352	FURNITURE	86	118	373
385	PRINTING	86	129	482
321	POTTERY	86	129	589
355	PLASTIC NEC	86	133	472
369	NON-FERROUS METALS	86	134	562
351	METAL PRODUCTS	86	135	548
371	MACHINERY	86	136	628
383	GLASS	86	142	575
312	FOOD	86	158	1164
323	OTHER MANUF.	86	159	990
314	PETR. REF.	86	161	689
353	TOBACCO	104	162	544
390	LEATHER	86	163	934
311	OTHER FOOD	96	165	723
362	ELECT. MACH.	93	166	819
382	IRON & STEEL	86	168	1132
381	CHEMICALS	105	174	707
372	OTHER NON-METAL	88	184	752
356	RUBBER	110	195	738
361	TEXTILES	144	246	949
342	PROF., SCI., MEAS. EQ.	147	269	1414
332	OTHER CHEMICALS	159	271	1154
384	APPAREL	170	304	1101
331	PAPER	86	313	1721
354	FOOTWEAR	196	399	1491
380	BEVERAGES	240	425	1478

NOTE Base trade is adjacent countries, 86 miles (Netherlands, Belgium)
Hypothetical trade is for nonadjacent countries, 86 + additional miles apart
The number 86 means that merely eliminating the adjacency effect reduces trade by more than the indicated amount.
Regression model: $\log(\text{Trade/GNP}) = a + b \log(g + \text{DIST}) + c\,\text{ADJ}$

Table 3
Geographic Concentration of Trade:
Distance Within Which 50% of GNP-Adjusted Trade Takes Place
and Corresponding Per Cent of Countries

		1970		1985		
ISIC		distance (miles)	country per cent	distance (miles)	country per cent	1985: 1970
332	FURNITURE	645	4.9	645	4.5	1.0
353	PETR. REF.	1132	10.5	727	5.1	0.6
356	PLASTIC NEC	705	5.4	743	5.2	1.1
314	TOBACCO	776	7.0	743	5.2	1.0
380	METAL SCRAP	822	7.4	745	5.3	0.9
354	MISC. PETR. & COAL	1070	9.6	748	5.7	0.7
342	PRINTING	785	7.0	776	6.4	1.0
369	OTHER NON-METAL	910	8.2	794	6.6	0.9
381	METAL PRODUCTS	1012	9.2	794	6.5	0.8
362	GLASS	1070	9.6	1030	8.5	1.0
351	CHEMICALS	1354	13.8	1098	9.2	0.8
361	POTTERY	794	7.1	1168	10.2	1.5
385	PROF., SCI., MEAS. EQ.	1191	11.5	1191	10.5	1.0
352	OTHER CHEMICALS	1452	14.5	1210	10.7	0.8
355	RUBBER	1168	11.1	1221	11.1	1.0
371	IRON & STEEL	1214	11.9	1265	11.7	1.0
313	BEVERAGES	1762	18.7	1266	11.8	0.7
321	TEXTILES	1421	14.2	1341	12.6	0.9
324	FOOTWEAR	840	7.6	1354	12.6	1.6
382	MACHINERY	1363	13.9	1363	12.8	1.0
384	TRANSPORT EQUIP.	1926	20.1	1363	12.8	0.7
331	WOOD	1485	15.3	1421	13.0	1.0
341	PAPER	1554	16.0	1472	13.8	0.9
383	ELECT. MACH.	1452	14.5	1551	14.5	1.1
322	APPAREL	705	5.4	1571	14.8	2.2
372	NON-FERROUS METALS	1579	16.5	2229	20.2	1.4
323	LEATHER	1098	10.0	2596	22.3	2.4
312	OTHER FOOD	3826	27.5	3539	24.5	0.9
390	OTHER MANUF.	1846	19.3	3918	27.0	2.1
311	FOOD	5647	43.5	3933	27.3	0.7

Table 2
Percent of Trade between Adjacent Countries
(Trade=Exports+Imports)

	1970	1985	Ratio
TOTAL	30.6%	27.6%	0.90
Wood	32.7%	42.4%	1.30
Printing and Publishing	40.4%	41.0%	1.02
Paper and Paper Products	35.9%	37.7%	1.05
Furniture	50.9%	37.3%	0.73
Transport Equip.	41.1%	36.8%	0.90
Misc. Petroleum Products	45.8%	35.7%	0.78
Glass and Glass Products	37.1%	34.4%	0.93
Other Non-metallic Min	39.5%	33.9%	0.86
Metal Scrap	31.8%	33.2%	1.04
Other Food	31.7%	32.5%	1.03
Fabricated Metal Products	34.6%	32.3%	0.94
Rubber Products	34.1%	31.9%	0.94
Plastic Products	32.4%	30.1%	0.93
Non-ferrous Metal Basic Ind.	26.7%	28.9%	1.09
Industrial Chemicals	27.9%	27.8%	1.00
Iron & Steel Basic Ind.	33.2%	26.1%	0.79
Textiles	30.3%	25.3%	0.84
Food Manf.	19.6%	23.5%	1.20
Beverage	26.9%	23.2%	0.86
Other Chemicals	24.7%	23.1%	0.93
Petroleum Refineries	18.2%	22.9%	1.26
Machinery except elec.	27.7%	21.8%	0.79
Tobacco	22.2%	20.0%	0.90
Pottery, China & Earthware	21.9%	19.0%	0.86
Elec. Machinery	25.2%	18.9%	0.75
Wearing Apparel	28.6%	18.8%	0.66
Leather	26.5%	16.9%	0.64
Footwear	17.7%	16.4%	0.93
Prof., Scientific, & Measuring	23.4%	16.4%	0.70
Other Manufacturing Ind.	14.8%	12.4%	0.84

Data Source: OECD Compatible Trade and Production Database
Note: Includes only trade flows with at least one OECD partner

Table 1
Top Ten U.S. Trade Partners, 1987-1991
Foreign & Domestic Exports, fas; General Imports, customs
Source: National Trade Data Bank

	1987	1991	Share 1991	Growth Rate
TOP 10 PURCHASERS OF U.S. EXPORTS				
Canada	54594	75856	19.0%	8.6%
Japan	16317	31385	7.8%	17.8%
Mexico	12210	28400	7.1%	23.5%
United Kingdom	12793	20326	5.1%	12.3%
Germany	9784	19442	4.9%	18.7%
France	6862	13685	3.4%	18.8%
Korea, South	4962	11131	2.8%	22.4%
Netherlands	5550	10330	2.6%	16.8%
Taiwan	5145	10031	2.5%	18.2%
Singapore	3738	8282	2.1%	22.0%
TOTAL TOP 10 EXPORTERS	131955	228868	57.2%	14.8%
TOP TEN SUPPLIERS OF U.S. IMPORTS				
Japan	83868	91006	18.1%	2.1%
Canada	54213	69685	13.8%	6.5%
Germany	26421	25489	5.1%	-0.9%
Mexico	13644	23000	4.6%	13.9%
Taiwan	24012	22638	4.5%	-1.5%
China	5382	17705	3.5%	34.7%
Korea, South	16628	16747	3.3%	0.2%
United Kingdom	14118	16175	3.2%	3.5%
France	9544	11950	2.4%	5.8%
Italy	9826	10458	2.1%	1.6%
TOTAL TOP 10 SUPPLIERS	257656	304853	60.5%	4.3%
TOTAL TRADE				
Canada	108807	145541	16.1%	7.5%
Japan	100185	122391	13.5%	5.1%
Mexico	25854	51400	5.7%	18.7%
Germany	36205	44931	5.0%	5.5%
United Kingdom	26911	36501	4.0%	7.9%
Taiwan	29157	32669	3.6%	2.9%
Korea, South	21590	27878	3.1%	6.6%
France	16406	25635	2.8%	11.8%

List of Tables

DISTANCE MEASURES IN MODEL

Distances are calculated as the ocean shipping distance between the main ports of the two countries, if applicable, plus the land shipping distances from the ports to the economic centers of each country. In the case of countries relatively close together, such as in continental Europe or U.S.-Canada, just an estimate of land shipping distance is used, since that is more likely than maritime shipping, and is generally much shorter.

For U.S.-Mexico trade, the distance is calculated as the maritime shipping distance between Vera Cruz and Houston (approx. 700 miles) plus the land shipping distance from Vera Cruz to Mexico City (estimated as approx. 230 miles) plus the land shipping distance from Houston to the economic center of the U.S.(estimated at approx. 1250 miles, putting it somewhere in the vicinity of Chicago).

Table A.1 Sample Distances

	US	Japan	Australia	Germany
US		8510	10695	4738
Japan	8510		5923	13518
Australia	10695	5923		13582
Germany	4738	13518	13582	
Spain	4520	11805	11868	1419
Mexico	2198	7808	8959	6469
Singapore	10960	3628	4801	9896
Taiwan	9140	1909	5823	11896

where ESS is the error sum-of-squares. As it turns out, this likelihood function is insensitive to small changes in the small values of θ and we accordingly set it to .0001.

To deal with the possible overparameterization caused by the quadratic wage variables, these are subjected to a joint F-test and omitted if they are collectively insignificant. Estimates of this model using 1985 data are reported in appendix Table 15.

Data Sources:

Trade Data: OECD, Compatible Trade and Production Database, 1970-1985.

Arable Land: FAO, Production Yearbook

Distance: constructed as attached

GNP, Population: World Bank, World Tables.

APPENDIX: THE FULL FORECAST MODEL

The model that is used to form the forecast takes the form

$$\log(X_{xm} + \theta GNP_x GNP_m/GNP\ ) = \alpha$$

$$+ \beta_1 w_x + \beta_2\ w_m + \beta_3 w_m w_x + \beta_4 w_x^2 + \beta_5 w_m^2 \qquad \text{WAGES}$$

$$+ \gamma_0 \log(D_{xm}) + \gamma_1 ADJ \qquad \text{DISTANCE}$$

$$+ \beta_4 \ell_x + \beta_5 \ell_m \qquad \text{ARABLE LAND}$$

$$+ \delta_{Gx}\ \log(GNP_x) + \delta_{Gm}\ \log(GNP_m) \qquad \text{GNP}$$

$$+ \delta_{Px}\ \log(POP_x) + \delta_{Pm}\ \log(POP_m) \qquad \text{POPULATION}$$

$$+ \delta_{Lx}\ L_x + \delta_{Lm}\ L_m \qquad \text{LAT.AM.DUMMY}$$

where

X_{xm} = exports from x to m

w_i = wage rate in country i

D_{xm} = distance from exporter to importer

ADJ = Adjaceny dummy : one for adjacent partners, zero otherwise

ℓ = arable land per man

GNP_i = Gross National Product of country i

$GNP_{\cdot}$ = World GNP

POP_i = population of country i

L_i = Latin American dummy variable, one if Latin American country, zero otherwise.

This model adds to the observed trade a small amount of additional trade equal to $\theta GNP_x GNP_m/GNP_{\cdot}$ Some device of this form is required to deal with zeroes in the data set. Rather than turning the zeroes into some arbitrary positive number in a traditional ad hoc fashion, the data are here allowed to decide the adjustment in the sense that θ is estimated by maximizing the logarithm of the likelihood function

$$-\sum \ln(|X_{xm} + \theta GNP_x GNP_m/GNP_{\cdot}|) - (N/2)\ln(ESS/N)$$

contract. Expropriation of assembly operations directly or indirectly through changes in trade agreements can only harm the Mexicans since the assembly plants are useless without U.S. parts. Apparel is a different story since cloth inputs can be purchased from a myriad of suppliers around the globe. Thus the emphasis of the Maquiladoras on assembly operations of foreign producers suggests a lack of trust in the Mexican liberalization.

equipment. When this sector is opened up, we can expect substantial exports to Mexico for Mexican consumption, not just for reexport after assembly back to the United States.

(3) The U.S. - Mexican economic experiment is unique.

Closeness of Mexico to the U.S. marketplace creates special opportunities for geographic dispersal of the production process with labor-intensive assembly being done in Mexico. This has of course been encouraged by the Maquiladora program which allows duty-free importation of parts from the United States for products destined for reexport back into the U.S. marketplace. That helps to explain the presence of vehicles and electrical machinery exports, but it fails to explain the very low levels of Mexican exports of apparel and footwear compared with the low-wage Asian countries. Why isn't the low-wage Mexican labor force being used like the Asian labor force. And if this were a big factor, why does it not seem to be present in the low-wage European countries like Portugal?

(4) The permanence of the Mexican liberalization remains very doubtful.

Any commercial transaction involves a substantial amount of trust. Even when you buy a quart of milk from the local grocery store, you have to believe that the milk is good or the store will make good on it. The store has an incentive to do so because it has made a substantial investment in that location and cannot afford to lose customers. Would you buy a quart of milk from some stranger at the door? Probably not. Any implied guarantee that might come with milk bought at the door has no enforcement mechanism, and you are wisely wary. There has to be some mechanism to assure the terms of a contract before you enter into it. The shipment of essential parts is one mechanism that enforces a

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$$+ \gamma_0 \log(D_{xm}) + \gamma_1 ADJ \qquad \text{DISTANCE}$$

$$+ \beta_4 \ell_x + \beta_5 \ell_m \qquad \text{ARABLE LAND}$$

$$+ \delta_{Gx}\ \log(GNP_x) + \delta_{Gm}\ \log(GNP_m) \qquad \text{GNP}$$

$$+ \delta_{Px}\ \log(POP_x) + \delta_{Pm}\ \log(POP_m) \qquad \text{POPULATION}$$

$$+ \delta_{Lx}\ L_x + \delta_{Lm}\ L_m \qquad \text{LAT.AM.DUMMY}$$

where

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D_{xm} = distance from exporter to importer

ADJ = Adjaceny dummy : one for adjacent partners, zero otherwise

ℓ = arable land per man

GNP_i = Gross National Product of country i

GNP = World GNP

POP_i = population of country i

L_i = Latin American dummy variable, one if Latin American country, zero otherwise.

This model adds to the observed trade a small amount of additional trade equal to $\theta GNP_x GNP_m/GNP$. Some device of this form is required to deal with zeroes in the data set. Rather than turning the zeroes into some arbitrary positive number in a traditional ad hoc fashion, the data are here allowed to decide the adjustment in the sense that θ is estimated by maximizing the logarithm of the likelihood function

$$-\sum \ln(|X_{xm} + \theta GNP_x GNP_m/GNP\ |) - (N/2)\ln(ESS/N)$$

where ESS is the error sum-of-squares. As it turns out, this likelihood function is insensitive to small changes in the small values of θ and we accordingly set it to .0001.

To deal with the possible overparameterization caused by the quadratic wage variables, these are subjected to a joint F-test and omitted if they are collectively insignificant. Estimates of this model using 1985 data are reported in appendix Table 15.

Data Sources:

Trade Data: OECD, Compatible Trade and Production Database, 1970-1985.

Arable Land: FAO, Production Yearbook

Distance: constructed as attached

GNP, Population: World Bank, World Tables.

DISTANCE MEASURES IN MODEL

Distances are calculated as the ocean shipping distance between the main ports of the two countries, if applicable, plus the land shipping distances from the ports to the economic centers of each country. In the case of countries relatively close together, such as in continental Europe or U.S.-Canada, just an estimate of land shipping distance is used, since that is more likely than maritime shipping, and is generally much shorter.

For U.S.-Mexico trade, the distance is calculated as the maritime shipping distance between Vera Cruz and Houston (approx. 700 miles) plus the land shipping distance from Vera Cruz to Mexico City (estimated as approx. 230 miles) plus the land shipping distance from Houston to the economic center of the U.S.(estimated at approx. 1250 miles, putting it somewhere in the vicinity of Chicago).

Table A.1 Sample Distances

	US	Japan	Australia	Germany
US		8510	10695	4738
Japan	8510		5923	13518
Australia	10695	5923		13582
Germany	4738	13518	13582	
Spain	4520	11805	11868	1419
Mexico	2198	7808	8959	6469
Singapore	10960	3628	4801	9896
Taiwan	9140	1909	5823	11896

List of Tables

Table 1
Top Ten U.S. Trade Partners, 1987-1991
Foreign & Domestic Exports, fas; General Imports, customs
Source: National Trade Data Bank

	1987	1991	Share 1991	Growth Rate
TOP 10 PURCHASERS OF U.S. EXPORTS				
Canada	54594	75856	19.0%	8.6%
Japan	16317	31385	7.8%	17.8%
Mexico	12210	28400	7.1%	23.5%
United Kingdom	12793	20326	5.1%	12.3%
Germany	9784	19442	4.9%	18.7%
France	6862	13685	3.4%	18.8%
Korea, South	4962	11131	2.8%	22.4%
Netherlands	5550	10330	2.6%	16.8%
Taiwan	5145	10031	2.5%	18.2%
Singapore	3738	8282	2.1%	22.0%
TOTAL TOP 10 EXPORTERS	131955	228868	57.2%	14.8%
TOP TEN SUPPLIERS OF U.S. IMPORTS				
Japan	83868	91006	18.1%	2.1%
Canada	54213	69685	13.8%	6.5%
Germany	26421	25489	5.1%	-0.9%
Mexico	13644	23000	4.6%	13.9%
Taiwan	24012	22638	4.5%	-1.5%
China	5382	17705	3.5%	34.7%
Korea, South	16628	16747	3.3%	0.2%
United Kingdom	14118	16175	3.2%	3.5%
France	9544	11950	2.4%	5.8%
Italy	9826	10458	2.1%	1.6%
TOTAL TOP 10 SUPPLIERS	257656	304853	60.5%	4.3%
TOTAL TRADE				
Canada	108807	145541	16.1%	7.5%
Japan	100185	122391	13.5%	5.1%
Mexico	25854	51400	5.7%	18.7%
Germany	36205	44931	5.0%	5.5%
United Kingdom	26911	36501	4.0%	7.9%
Taiwan	29157	32669	3.6%	2.9%
Korea, South	21590	27878	3.1%	6.6%
France	16406	25635	2.8%	11.8%

Table 2
Percent of Trade between Adjacent Countries
(Trade=Exports+Imports)

	1970	1985	Ratio
TOTAL	30.6%	27.6%	0.90
Wood	32.7%	42.4%	1.30
Printing and Publishing	40.4%	41.0%	1.02
Paper and Paper Products	35.9%	37.7%	1.05
Furniture	50.9%	37.3%	0.73
Transport Equip.	41.1%	36.8%	0.90
Misc. Petroleum Products	45.8%	35.7%	0.78
Glass and Glass Products	37.1%	34.4%	0.93
Other Non-metallic Min	39.5%	33.9%	0.86
Metal Scrap	31.8%	33.2%	1.04
Other Food	31.7%	32.5%	1.03
Fabricated Metal Products	34.6%	32.3%	0.94
Rubber Products	34.1%	31.9%	0.94
Plastic Products	32.4%	30.1%	0.93
Non-ferrous Metal Basic Ind.	26.7%	28.9%	1.09
Industrial Chemicals	27.9%	27.8%	1.00
Iron & Steel Basic Ind.	33.2%	26.1%	0.79
Textiles	30.3%	25.3%	0.84
Food Manf.	19.6%	23.5%	1.20
Beverage	26.9%	23.2%	0.86
Other Chemicals	24.7%	23.1%	0.93
Petroleum Refineries	18.2%	22.9%	1.26
Machinery except elec.	27.7%	21.8%	0.79
Tobacco	22.2%	20.0%	0.90
Pottery, China & Earthware	21.9%	19.0%	0.86
Elec. Machinery	25.2%	18.9%	0.75
Wearing Apparel	28.6%	18.8%	0.66
Leather	26.5%	16.9%	0.64
Footwear	17.7%	16.4%	0.93
Prof., Scientific, & Measuring	23.4%	16.4%	0.70
Other Manufacturing Ind.	14.8%	12.4%	0.84

Data Source: OECD Compatible Trade and Production Database
Note: Includes only trade flows with at least one OECD partner

Table 3
Geographic Concentration of Trade:
Distance Within Which 50% of GNP-Adjusted Trade Takes Place
and Corresponding Per Cent of Countries

		1970		1985		
ISIC		distance (miles)	country per cent	distance (miles)	country per cent	1985: 1970
332	FURNITURE	645	4.9	645	4.5	1.0
353	PETR. REF.	1132	10.5	727	5.1	0.6
356	PLASTIC NEC	705	5.4	743	5.2	1.1
314	TOBACCO	776	7.0	743	5.2	1.0
380	METAL SCRAP	822	7.4	745	5.3	0.9
354	MISC. PETR. & COAL	1070	9.6	748	5.7	0.7
342	PRINTING	785	7.0	776	6.4	1.0
369	OTHER NON-METAL	910	8.2	794	6.6	0.9
381	METAL PRODUCTS	1012	9.2	794	6.5	0.8
362	GLASS	1070	9.6	1030	8.5	1.0
351	CHEMICALS	1354	13.8	1098	9.2	0.8
361	POTTERY	794	7.1	1168	10.2	1.5
385	PROF., SCI., MEAS. EQ.	1191	11.5	1191	10.5	1.0
352	OTHER CHEMICALS	1452	14.5	1210	10.7	0.8
355	RUBBER	1168	11.1	1221	11.1	1.0
371	IRON & STEEL	1214	11.9	1265	11.7	1.0
313	BEVERAGES	1762	18.7	1266	11.8	0.7
321	TEXTILES	1421	14.2	1341	12.6	0.9
324	FOOTWEAR	840	7.6	1354	12.6	1.6
382	MACHINERY	1363	13.9	1363	12.8	1.0
384	TRANSPORT EQUIP.	1926	20.1	1363	12.8	0.7
331	WOOD	1485	15.3	1421	13.0	1.0
341	PAPER	1554	16.0	1472	13.8	0.9
383	ELECT. MACH.	1452	14.5	1551	14.5	1.1
322	APPAREL	705	5.4	1571	14.8	2.2
372	NON-FERROUS METALS	1579	16.5	2229	20.2	1.4
323	LEATHER	1098	10.0	2596	22.3	2.4
312	OTHER FOOD	3826	27.5	3539	24.5	0.9
390	OTHER MANUF.	1846	19.3	3918	27.0	2.1
311	FOOD	5647	43.5	3933	27.3	0.7

Table 4
Estimated Effect of Distance on International Trade
Distance Percentiles of Trade:1985

SECTOR		Distance that eliminates x% of trade		
		10%	50%	90%
313	METAL SCRAP	86	86	250
324	MISC. PETR. & COAL	86	101	325
341	WOOD	86	112	826
322	TRANSPORT EQUIP.	86	113	436
352	FURNITURE	86	118	373
385	PRINTING	86	129	482
321	POTTERY	86	129	589
355	PLASTIC NEC	86	133	472
369	NON-FERROUS METALS	86	134	562
351	METAL PRODUCTS	86	135	548
371	MACHINERY	86	136	628
383	GLASS	86	142	575
312	FOOD	86	158	1164
323	OTHER MANUF.	86	159	990
314	PETR. REF.	86	161	689
353	TOBACCO	104	162	544
390	LEATHER	86	163	934
311	OTHER FOOD	96	165	723
362	ELECT. MACH.	93	166	819
382	IRON & STEEL	86	168	1132
381	CHEMICALS	105	174	707
372	OTHER NON-METAL	88	184	752
356	RUBBER	110	195	738
361	TEXTILES	144	246	949
342	PROF., SCI., MEAS. EQ.	147	269	1414
332	OTHER CHEMICALS	159	271	1154
384	APPAREL	170	304	1101
331	PAPER	86	313	1721
354	FOOTWEAR	196	399	1491
380	BEVERAGES	240	425	1478

NOTE Base trade is adjacent countries, 86 miles (Netherlands, Belgium)
Hypothetical trade is for nonadjacent countries, 86 + additional miles apart
The number 86 means that merely eliminating the adjacency effect reduces trade by more than the indicated amount.
Regression model: $\log(\text{Trade}/\text{GNP}) = a + b \log(g + \text{DIST}) + c\,\text{ADJ}$

Table 5
Wage-Direction of GNP Adjusted Exports, 1985

	Per Cent in Each Direction				Ratios to Country Concentration				
	LL	HH	LH	HL	LL	HH	LH	HL	HL:LH
LOW LOW									
362 GLASS	29.3	42.9	7.9	19.8	1.59	2.33	0.25	0.63	2.5
323 LEATHER	27.9	21.3	28.9	21.9	1.51	1.15	0.92	0.70	-1.3
369 OTHER NON-META	27.6	40.9	8.9	22.6	1.49	2.21	0.28	0.72	2.5
372 NON-FERROUS ME	24.8	33.9	24.9	16.4	1.34	1.84	0.79	0.52	-1.5
371 IRON & STEEL	23.1	39.6	8.9	28.4	1.25	2.15	0.28	0.90	3.2
342 PRINTING	22.0	53.1	8.7	16.2	1.19	2.88	0.28	0.51	1.9
361 POTTERY	20.2	37.7	24.6	17.5	1.09	2.04	0.78	0.55	-1.4
HIGH HIGH									
332 FURNITURE	3.2	72.8	11.9	12.0	0.18	3.94	0.38	0.38	1.0
356 PLASTIC NEC	9.8	61.8	12.5	15.9	0.53	3.35	0.40	0.51	1.3
354 MISC. PETR. & COA	8.1	57.2	7.5	27.3	0.44	3.10	0.24	0.87	3.7
314 TOBACCO	14.2	57.1	3.5	25.2	0.77	3.09	0.11	0.80	7.2
385 PROF., SCI., MEAS.	5.4	55.9	7.6	31.1	0.29	3.03	0.24	0.99	4.1
380 METAL SCRAP	5.4	54.6	22.9	17.2	0.29	2.96	0.72	0.55	-1.3
381 METAL PRODUCTS	11.7	53.6	8.8	25.9	0.63	2.91	0.28	0.82	3.0
353 PETR. REF.	16.2	53.3	19.2	11.3	0.88	2.89	0.61	0.36	-1.7
355 RUBBER	8.9	50.1	18.1	22.9	0.48	2.71	0.57	0.73	1.3
331 WOOD	17.2	44.9	21.7	16.2	0.93	2.43	0.69	0.51	-1.3
383 ELECT. MACH.	9.0	44.0	16.0	31.0	0.49	2.38	0.51	0.98	1.9
321 TEXTILES	12.1	37.0	29.8	21.1	0.66	2.01	0.94	0.67	-1.4
LOW HIGH									
322 APPAREL	4.4	35.7	55.3	4.6	0.24	1.94	1.75	0.15	-12.0
324 FOOTWEAR	9.8	31.6	52.6	6.0	0.53	1.71	1.67	0.19	-8.7
311 FOOD	13.7	25.2	37.7	23.4.	0.74	1.36	1.20	0.74	-1.6
313 BEVERAGES	8.7	32.4	36.0	22.9	0.47	1.75	1.14	0.73	-1.6
HIGH LOW									
312 OTHER FOOD	3.8	34.9	11.8	49.4	0.21	1.89	0.37	1.57	4.2
390 OTHER MANUF.	3.3	31.8	26.2	38.6	0.18	1.72	0.83	1.23	1.5
384 TRANSPORT EQUIP	9.4	43.4	9.2	38.0	0.51	2.35	0.29	1.20	4.1
352 OTHER CHEMICAL	11.3	46.1	5.4	37.2	0.61	2.50	0.17	1.18	6.9
351 CHEMICALS	9.4	45.4	10.2	35.0	0.51	2.46	0.32	1.11	3.4
382 MACHINERY	6.8	51.3	8.0	33.8	0.37	2.78	0.25	1.07	4.2
341 PAPER	11.2	48.8	7.2	32.8	0.61	2.64	0.23	1.04	4.5
Average	12.9	44.6	18.4	24.1	0.7	2.4	0.6	0.8	1.3
Country Conc.	18.5	18.5	31.5	31.5					

Note: High- and Low-wage Countries Defined Relative to Median Wages
HL:LH compares HL to LH; see text

Table 6
Estimated Effect of Wages on the Direction of Trade
Trade Among Otherwise Identical Low-wage and High-wage Countries

	Per Cent in Each Direction				
	Low-Low	High-High	Low-High	High-Low	HL:LH
Low-wage commodities					
323 LEATHER	29.9	41.1	25.0	4.1	-6.1
High-wage Commodities					
331 WOOD	0.8	96.5	0.6	2.0	3.2
332 FURNITURE	0.9	89.3	4.6	5.2	1.1
354 MISC. PETR.	4.5	82.9	0.5	12.1	25.8
314 TOBACCO	1.4	76.3	0.6	21.8	38.2
352 OTHER CHEMICALS	10.6	74.8	1.9	12.7	6.8
353 PET. REFINERIES	7.0	70.8	7.4	14.8	2.0
355 RUBBER	10.3	63.5	11.4	14.8	1.3
381 METAL PRODUCTS	6.0	56.7	8.2	29.0	3.5
371 IRON & STEEL	10.6	50.7	15.4	23.3	1.5
369 OTH NON-METALLIC	10.0	48.4	20.8	20.8	-1.0
356 PLASTIC NEC	11.0	46.3	25.5	17.2	-1.5
362 GLASS	21.2	45.7	26.9	6.2	-4.4
Upstream Commodities					
322 APPAREL	2.3	9.0	86.3	2.4	-35.3
311 FOOD	7.8	1.3	54.0	36.9	-1.5
321 TEXTILES	15.8	10.1	47.0	27.2	-1.7
313 BEVERAGES	9.1	46.8	43.5	0.6	-68.3
324 FOOTWEAR	8.7	47.6	42.3	1.4	-30.2
390 OTHER MANF.	6.1	38.1	41.8	14.0	-3.0
312 OTHER FOOD	22.2	21.0	36.0	20.8	-1.7
361 POTTERY	8.4	55.7	31.0	4.9	-6.3
Downstream Commodities					
380 METAL SCRAP	1.7	15.5	1.0	81.8	83.4
383 ELEC. MACH.	5.7	30.7	6.1	57.5	9.5
341 PAPER	1.6	53.1	0.3	45.0	176.3
351 CHEMICALS	10.6	42.1	7.0	40.3	5.8
384 TRANSPORT EQUIP.	0.7	57.8	1.3	40.3	32.0
372 NON-FERROUS MET.	3.9	51.8	4.8	39.5	8.2
382 MACHINERY	3.2	60.9	1.6	34.2	20.9
385 PROF., SCR., MEAS.	1.5	66.2	1.3	31.1	24.3
342 PRINTING	5.3	52.7	11.6	30.4	2.6

Note: Estimated from regressions of log(Exports*Dist/GNPx GNPm)
on full quadratic function of importer and exporter wage.
Direction of trade computed using U.S. and Mexican wages.

Table 7
U.S. Exports to Mexico, Actual and Predicted
Millions of Dollars

	Actual	Predicted				Increase		Annual Growth	
Commodity	1985	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Nonferrous met	197	303	1,997	4,066	5,194	54%	916%	20%	21%
Transport equip	2,000	6,723	20,357	36,367	44,426	236%	918%	19%	20%
Paper	322	887	2,692	3,907	4,231	175%	735%	16%	16%
Ind. Chemicals	1,286	5,077	8,658	15,449	18,704	295%	573%	16%	17%
Prof. & Scien.	337	591	1,750	3,150	4,450	75%	419%	14%	16%
Iron & steel	199	359	1,084	1,852	1,965	80%	445%	14%	14%
Printing	38	67	218	345	492	78%	482%	14%	16%
Fabricated met	250	497	1,447	2,236	2,642	99%	479%	14%	15%
Tobacco	1	1	7	9	12	-12%	532%	14%	15%
Wood	74	49	365	631	1,180	-33%	394%	13%	18%
Machinery	2,068	3,998	9,544	16,213	20,808	93%	361%	13%	15%
Petroleum	235	451	749	1,440	1,855	92%	218%	11%	13%
Textiles	185	43	682	1,082	1,322	-77%	269%	11%	12%
Elec. mach.	2,135	1,745	6,677	11,384	14,674	-18%	213%	10%	12%
Other non-met	55	52	171	291	301	-5%	210%	10%	10%
Pottery, china	15	10	48	77	97	-34%	223%	10%	12%
Misc. petro	28	18	96	135	145	-36%	248%	10%	10%
Other chem.	131	346	380	623	856	163%	189%	10%	12%
Metal scrap	133	63	222	473	903	-53%	66%	8%	12%
Furniture	122	64	249	417	626	-48%	104%	7%	10%
Other manufac.	79	33	143	241	385	-58%	80%	7%	10%
Leather	15	1	24	40	65	-96%	53%	6%	9%
Food	441	86	671	1,077	1,422	-81%	52%	5%	7%
Other food	21	13	30	47	64	-36%	45%	5%	7%
Plastics	108	30	116	180	249	-72%	8%	3%	5%
Glass	33	7	21	33	46	-79%	-36%	-0%	2%
Rubber	139	46	82	120	176	-67%	-41%	-1%	1%
Beverage	1	0	0	1	1	-78%	-67%	-5%	-2%
Footwear	36	1	7	11	18	-97%	-81%	-7%	-4%
Wearing App.	164	9	31	49	85	-95%	-81%	-7%	-4%
TOTAL	10,850	21,567	58,520	101,949	127,393	99%	439%	14%	16%

SCENARIOS

(1) 1985 Predicted
(2) 1985 Predicted without Latin American Effect
(3) 2002 Prediction, Mexican Low-Growth Scenario

	GNP	Pop.	Wages
U.S.:	same as world		0.0%
Mexico:	3.0%	2.5%	0.0%

(4) 2002 Prediction, Mexican High-Growth Scenario

	GNP	Pop.	Wages
U.S.:	same as world		0.0%
Mexico:	5.0%	2.5%	2.0%

Table 8
U.S. Imports from Mexico, Actual and Predicted
Millions of Dollars

	Actual	Predicted				Increase		Annual Growth	
Commodity	1985	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Tobacco	5	0	0	0	0	-98%	-99%	-20%	-16%
Metal scrap	23	1	2	3	5	-95%	-93%	-11%	-8%
Misc. petro	24	1	2	5	20	-95%	-93%	-8%	-1%
Elec. mach.	3,296	38	616	1,601	3,699	-99%	-81%	-4%	1%
Paper	27	1	6	14	34	-96%	-76%	-4%	1%
Petroleum	797	31	117	450	980	-96%	-85%	-3%	1%
Nonferrous met	347	51	113	285	673	-85%	-68%	-1%	4%
Glass	143	4	46	135	436	-98%	-68%	-0%	7%
Beverage	143	19	58	148	416	-87%	-59%	0%	6%
Other food	25	56	18	27	50	127%	-29%	0%	4%
Other non-met	225	5	102	262	709	-98%	-55%	1%	7%
Prof. & Scien.	197	2	108	267	813	-99%	-45%	2%	9%
Food	556	2,208	585	844	1,060	297%	5%	2%	4%
Transport equip	1,620	82	770	2,517	7,738	-95%	-52%	3%	10%
Other chem.	55	3	52	126	368	-94%	-6%	5%	12%
Machinery	647	20	636	1,772	4,729	-97%	-2%	6%	12%
Ind. Chemicals	471	138	611	1,608	4,056	-71%	30%	7%	14%
Wood	90	2	172	350	400	-98%	90%	8%	9%
Furniture	181	3	351	889	1,680	-98%	94%	10%	14%
Plastics	93	3	243	600	1,306	-97%	160%	12%	17%
Fabricated met	180	5	772	1,970	4,063	-97%	328%	15%	20%
Leather	47	15	208	587	1,038	-69%	339%	16%	20%
Rubber	19	0	94	239	541	-98%	402%	16%	22%
Iron & steel	129	39	514	1,738	5,526	-70%	298%	17%	25%
Printing	19	4	116	315	692	-81%	512%	18%	24%
Other manufac.	119	16	1,095	2,709	5,445	-86%	818%	20%	25%
Footwear	84	3	872	2,389	3,449	-97%	933%	22%	24%
Pottery, china	28	11	315	942	1,785	-60%	1025%	23%	28%
Textiles	91	78	1,707	4,213	5,959	-14%	1779%	25%	28%
Wearing App.	292	21	8,362	19,467	18,961	-93%	2762%	28%	28%
TOTAL	9,974	2,861	18,662	46,471	76,633	-71%	87%	9%	13%

SCENARIOS

(1) 1985 Predicted
(2) 1985 Predicted without Latin American Effect
(3) 2002 Prediction, Mexican Low-Growth Scenario

	GNP	Pop.	Wages
U.S.:	same as world		0.0%
Mexico:	3.0%	2.5%	0.0%

(4) 2002 Prediction, Mexican High-Growth Scenario

	GNP	Pop.	Wages
U.S.:	same as world		0.0%
Mexico:	5.0%	2.5%	2.0%

the same activity because they are so far away. On the other hand, Mexican locations of production of apparel have to compete with the low-wage Asian producers. This competition may force them into activities in which the closeness advantage matters, vehicle assembly being one choice.

(b) Resource supplies matter; the wage difference. The second principle on which my vision rests is that the wage difference between Mexico and the United States will have a significant effect on shaping the trade between these countries. Evidence concerning the influence of wage differences is reported in Table 5. To form this table, countries are sorted into high-wage and low-wage groups, separated by the median wage level. Then commodities are sorted in terms of the primary direction of trade. "Upstream" trade goes from low-wage exporters to high-wage importers, "downstream" trade goes in the opposite direction. "High-wage" trade involves a high-wage exporter and a high-wage importer. "Low-wage" trade takes place between two low-wage countries.

Referring now to Table 5, we see that 29.3% of trade in printing and publishing took place between low-wage countries, and 42.9% took place between high-wage countries. Only 7.9% was upstream trade and 19.8% was downstream trade. These numbers have to be interpreted with a bit of care. First of all they refer to "GNP-adjusted" trade which corrects the trade flow by the economic size of the partners, specifically by dividing by the product of their GNP's. This obviously makes the economically smaller countries more important. The reason for doing this is to isolate the pure wage effect, controlling for country size.[6]

[6] In the statistical analysis soon to be discussed, the country size effect is controlled by including GNP as an explanatory variable.

free trade agreement between northern Mexico, California and Texas. The implications of NAFTA extend northward beyond Texas and southern California not because much commerce will be done between the northern states and Mexico but rather because these northern states and Mexico will compete against each other in Texan and Southern Californian marketplaces.

Incidentally, the importance of distance as a determinant of commerce implies that the effect of the Mexican liberalization will be increasingly slight as one moves south away from the U.S. border. In particular, the northern states of Mexico can expect greatly increased demand for labor, which will induce substantial wage increases and concomitant migration away from southern Mexico.

The United States and Mexico, other things equal, have a mutual comparative advantage in the products that don't travel well, namely those at the top of the list of Table 4. These are Metal Scrap, Miscellaneous Petroleum Products, Wood Products and Transportation Equipment. One thing that has always bothered me about the Maquiladoras is the amount of vehicle production that is being done in comparison with apparel and footwear. The latter are the labor-intensive goods that are the products of choice for the emerging low-wage countries of Asia. These same low-wage Asian countries have not been much in the business of producing transportation equipment. Why would Mexico be different? One possible explanation lies in Table 4. The comparative advantage conveyed by closeness is very significant in Transportation Equipment. Because Mexico is close to the U.S. market, it is possible to employ low-wage Mexicans in the labor-intensive assembly operations of vehicle production. It is not possible to employ low-wage Asians for

Table 11
U.S. Imports from Mexico
Share of U.S. Output

Commodity	Actual 1985	Predicted (1)	(2)	(3)	(4)	Change (1)	(2)	(3)	(4)
Elec. mach.	2.0%	0.0%	0.4%	1.0%	2.2%	-1.9%	-1.6%	-1.0%	0.2%
Misc. petro	0.2%	0.0%	0.0%	0.0%	0.2%	-0.2%	-0.2%	-0.1%	-0.0%
Petroleum	0.3%	0.0%	0.0%	0.2%	0.3%	-0.3%	-0.2%	-0.1%	0.1%
Nonferrous met	0.6%	0.1%	0.2%	0.5%	1.2%	-0.5%	-0.4%	-0.1%	0.6%
Glass	0.9%	0.0%	0.3%	0.9%	2.9%	-0.9%	-0.6%	-0.1%	1.9%
Tobacco	0.0%	0.0%	0.0%	0.0%	0.0%	-0.0%	-0.0%	-0.0%	-0.0%
Paper	0.0%	0.0%	0.0%	0.0%	0.0%	-0.0%	-0.0%	-0.0%	0.0%
Other food	0.0%	0.1%	0.0%	0.1%	0.1%	0.1%	-0.0%	0.0%	0.1%
Beverage	0.4%	0.0%	0.1%	0.4%	1.1%	-0.3%	-0.2%	0.0%	0.7%
Other chem.	0.1%	0.0%	0.1%	0.1%	0.4%	-0.1%	-0.0%	0.1%	0.3%
Other non-met	0.6%	0.0%	0.3%	0.7%	1.9%	-0.6%	-0.3%	0.1%	1.3%
Food	0.2%	1.0%	0.3%	0.4%	0.5%	0.7%	0.0%	0.1%	0.2%
Prof. & Scien.	0.4%	0.0%	0.2%	0.5%	1.6%	-0.4%	-0.2%	0.1%	1.2%
Printing	0.0%	0.0%	0.1%	0.3%	0.7%	-0.0%	0.1%	0.3%	0.6%
Transport equip	0.6%	0.0%	0.3%	0.9%	2.9%	-0.6%	-0.3%	0.3%	2.3%
Machinery	0.3%	0.0%	0.3%	0.8%	2.2%	-0.3%	-0.0%	0.5%	1.9%
Wood	0.2%	0.0%	0.4%	0.9%	1.0%	-0.2%	0.2%	0.6%	0.8%
Ind. Chemicals	0.4%	0.1%	0.5%	1.2%	3.1%	-0.3%	0.1%	0.9%	2.7%
Rubber	0.1%	0.0%	0.4%	1.0%	2.3%	-0.1%	0.3%	1.0%	2.3%
Plastics	0.2%	0.0%	0.5%	1.1%	2.5%	-0.2%	0.3%	1.0%	2.3%
Fabricated met	0.1%	0.0%	0.5%	1.4%	2.9%	-0.1%	0.4%	1.3%	2.7%
iron & steel	0.2%	0.0%	0.6%	2.1%	6.7%	-0.1%	0.5%	1.9%	6.5%
Furniture	0.8%	0.0%	1.5%	3.9%	7.4%	-0.8%	0.7%	3.1%	6.6%
Textiles	0.1%	0.1%	2.4%	6.0%	8.5%	-0.0%	2.3%	5.9%	8.4%
Other manufac.	0.5%	0.1%	4.4%	10.9%	22.0%	-0.4%	3.9%	10.5%	21.5%
Leather	1.2%	0.4%	5.1%	14.5%	25.6%	-0.8%	4.0%	13.3%	24.5%
Pottery, china	1.4%	0.5%	15.3%	45.7%	86.6%	-0.8%	13.9%	44.3%	85.2%
Wearing App.	0.7%	0.1%	20.3%	47.2%	46.0%	-0.7%	19.6%	46.5%	45.3%
Footwear	1.8%	0.1%	18.1%	49.7%	71.8%	-1.7%	16.4%	47.9%	70.0%
Metal scrap	na	na	na	na	na	na	na	na	na
TOTAL	0.4%	0.1%	0.8%	1.9%	3.2%	-0.3%	0.4%	1.5%	2.8%

SCENARIOS

(1) 1985 Predicted
(2) 1985 Predicted without Latin American Effect
(3) 2002 Prediction, Mexican Low-Growth Scenario

	GNP	Pop.	Wages
U.S.:	same as world		0.0%
Mexico:	3.0%	2.5%	0.0%

(4) 2002 Prediction, Mexican High-Growth Scenario

	GNP	Pop.	Wages
U.S.:	same as world		0.0%
Mexico:	5.0%	2.5%	2.0%

Table 12
U.S. Exports to Mexico
Source: Department of Commerce, National Trade Data Base
Units: Millions of Dollars

	1992 Estimate	1991	1990	1989	1988 Est.	1987 Est.	Yearly Growth	1992 Growth
Beverages	73	45	25	25	18	4	75.1%	62.8%
Other P. Food	342	228	178	152	152	29	64.2%	50.4%
Furniture	791	624	383	279	169	107	49.3%	26.9%
Iron/Steel	1765	1349	929	757	604	344	38.7%	30.9%
Wood P.	559	385	272	226	172	109	38.6%	45.2%
Non-metal Minerals	492	282	254	223	128	101	37.4%	74.7%
Raw/P. Tobacco	5	4	3	2	1	1	37.3%	14.6%
Printed Prod	161	134	90	69	45	35	35.5%	20.8%
Glass	212	144	126	89	56	47	35.1%	47.9%
Apparel	698	479	338	303	242	179	31.3%	45.7%
Transport Equipment	6022	4380	3800	2544	2050	1548	31.2%	37.5%
Misc. Metal Products	694	560	473	410	243	193	29.2%	23.9%
Other Chemicals	717	558	510	372	247	205	28.5%	28.3%
Ceramics	41	47	52	45	26	12	27.9%	-11.6%
Rubber	468	388	296	266	234	141	27.1%	20.8%
Plastics	2078	1438	1272	1178	946	641	26.5%	44.5%
Textiles	667	541	486	316	254	208	26.3%	23.4%
Misc. Manufacturing	394	336	320	292	237	123	26.3%	17.4%
Instruments	1651	1315	999	846	701	533	25.4%	25.6%
Special Categories	1716	1625	1464	1228	803	555	25.3%	5.6%
Unprocesed Food	2571	1933	1735	1868	1596	832	25.3%	33.0%
Process Food	723	612	484	581	372	234	25.3%	18.2%
Footwear	83	62	61	68	44	27	24.8%	33.8%
Other Metals	772	625	564	548	477	292	21.4%	23.6%
Electrical Machinery	7740	6053	5291	4968	4263	2962	21.2%	27.9%
Heavy Machinery	5984	4654	3919	3371	3138	2385	20.2%	28.6%
Paper Prod	1375	1092	973	1001	840	615	17.4%	25.9%
Leather	271	214	165	160	185	127	16.4%	27.0%
Petroleum	1073	868	827	714	485	535	14.9%	23.6%
Industrial Chemicals	1525	1307	1177	1217	1125	920	10.6%	16.6%
All commodities	41620	32279	27468	24117	19853	14045	24.3%	28.9%

Table 13
U.S. Imports from Mexico
Source: Department of Commerce, National Trade Data Base
Units: Millions of Dollars

	1992 Estimate	1991	1990	1989	Yearly Growth	1992 Growth
Paper Prod	144	127	201	389	-28.1%	14.1%
Raw/P. Tobacco	17	20	16	29	-16.5%	-13.3%
Non-metal Minerals	598	599	675	988	-15.4%	-0.3%
Rubber	113	96	115	139	-6.8%	17.6%
Other Metals	362	316	471	443	-6.5%	14.4%
Unprocesed Food	1942	2405	2456	2202	-4.1%	-19.2%
Petroleum	4399	4816	5375	4354	0.3%	-8.7%
Misc. Metal Products	296	289	386	280	1.9%	2.2%
Process Food	343	379	371	320	2.3%	-9.4%
Special Categories	1451	1376	1325	1251	5.1%	5.5%
Beverages	277	239	257	233	6.0%	16.1%
Footwear	209	165	166	172	6.7%	26.6%
Heavy Machinery	2732	2304	2148	2224	7.1%	18.6%
Other P. Food	32	27	28	26	7.2%	19.2%
Misc. Manufacturing	435	434	368	350	7.4%	0.1%
Leather	148	120	126	117	8.0%	23.5%
Electrical Machinery	9037	7628	7122	6748	10.2%	18.5%
Industrial Chemicals	608	528	495	449	10.6%	15.1%
Iron/Steel	666	610	599	489	10.8%	9.2%
Ceramics	151	109	104	106	12.6%	39.1%
Wood P.	323	254	221	222	13.3%	27.5%
Furniture	912	749	663	607	14.5%	21.7%
Glass	309	273	247	204	14.9%	12.9%
Instruments	955	780	662	582	18.0%	22.4%
Other Chemicals	173	143	138	105	18.2%	20.9%
Plastics	367	306	246	222	18.2%	20.2%
Apparel	1180	867	669	556	28.5%	36.1%
Textiles	352	312	280	155	31.6%	12.8%
Trans. Equip.	6864	4768	4166	2964	32.3%	44.0%
Printed Prod	71	50	29	22	48.8%	44.1%
All commodities	34989	31087	30127	26947	9.1%	12.6%

Table 14
Reality Checks
Regressions of Realizations on Predictions
Dependent Variable: log(1991 Actual Data)

	Full Data Set				Selected Sectors			
	Intrcpt	'85 Act.	Growth	R-sq	Intrcpt	'85 Act.	Growth	R-sq
Exports								
Coefficients	2.506	0.756		0.854	1.673	0.890		0.933
St Err.	0.310	0.061			0.271	0.051		
Coefficients	2.518	0.771	-0.987	0.856	1.633	0.881	0.953	0.935
St Err.	0.315	0.068	1.874		0.280	0.053	1.354	
Imports								
Coefficients	1.365	0.917		0.863	1.309	0.927		0.839
St Err.	0.364	0.072			0.419	0.081		
Coefficients	1.310	0.919	0.596	0.865	1.019	0.963	1.337	0.846
St Err.	0.380	0.073	1.013		0.508	0.089	1.329	

Removed Sectors	
Exports	Imports
Beverages	Tobacco
Leather	
Other P. Food	
Plastics	

Table 15
Regression Coefficients of Full Trade Model - 1985 Data
Dependent Variable - Ln(exports + error term)
(t-statistics in parentheses)

Commodity	C	Exportr Wage(wx)	Importr Wage(wm)	wx*wm	wx sqrd	wm sqrd	Ln(Dist)	Adjacent Dummy	Exporter Land p.c.	Importer Land p.c.	Ln(gnp of exporter)	Ln(gnp of importr)	Ln(pop. of exportr)	Ln(pop. of importr)	Exporter Lat.Am.	Importer Lat.Am.	R-sq	Sample Size
Food	-8.17	1.858	0.925	-0.103	-0.082	-0.047	-0.958	0.443	1.00E-05	-2.48E-05	-0.015	1.299	0.903	-0.458	1.329	-2.056	0.49	1134
		(8.95)	(3.90)	(-7.35)	(-4.26)	(-2.47)	(-7.89)	(.85)	(.66)	(-1.84)	(-.09)	(5.28)	(3.81)	(-1.93)	(4.26)	(-5.55)		
Other food	-5.87	1.992	0.104	-0.043	-0.118	0.008	-1.098	0.368	-1.15E-04	8.54E-07	-0.286	1.438	1.203	-0.843	1.157	-0.811	0.47	1114
		(8.06)	(.42)	(-2.93)	(-6.01)	(.32)	(-8.56)	(.69)	(-7.06)	(.04)	(-1.14)	(5.56)	(4.92)	(-2.80)	(3.80)	(-2.46)		
Beverage	-26.36	0.569	0.159	-0.013	-0.127	0.029	-1.347	-0.138	-1.24E-05	2.59E-05	3.211	1.053	-1.633	-0.426	-1.109	-0.414	0.52	1018
		(1.95)	(.52)	(-.75)	(-5.44)	(1.24)	(-8.86)	(-.22)	(-.86)	(1.37)	(9.73)	(3.51)	(-5.20)	(-1.47)	(-2.51)	(1.08)		
Tobacco	-10.05	1.588	-0.984	0.024	-0.072	0.072	-1.518	0.954	-1.74E-04	1.54E-05	-0.018	1.808	1.270	-1.390	0.310	-1.971	0.48	740
		(3.70)	(-2.37)	(.94)	(-2.33)	(2.42)	(-7.95)	(1.36)	(-8.80)	(.85)	(-.04)	(4.45)	(3.04)	(-3.56)	(.48)	(-3.61)		
Textiles	-17.51	0.987	0.598	-0.096	-0.082	-0.023	-1.214	-0.278	-3.72E-05	1.45E-05	1.563	1.396	0.235	-0.553	-3.082	-2.782	0.83	1114
		(4.16)	(2.53)	(-8.96)	(-4.43)	(-1.24)	(-10.03)	(-.54)	(-2.51)	(.99)	(8.46)	(5.80)	(1.01)	(-2.39)	(-9.92)	(-8.96)		
Wearing Apparel	-22.23	0.514	1.583	-0.139	-0.039	-0.056	-1.284	0.037	-8.42E-05	-3.17E-05	1.779	1.548	-0.196	-0.806	-5.980	-1.298	0.88	1088
		(1.98)	(6.08)	(-8.88)	(-1.94)	(-2.81)	(-9.86)	(.07)	(-4.01)	(-2.00)	(8.72)	(5.82)	(-.77)	(-3.15)	(-17.28)	(-3.81)		
Leather	-32.87	0.477	0.458	-0.057	-0.082	-0.028	-0.898	0.321	-3.95E-05	-3.30E-05	2.470	1.903	-0.536	-1.093	-2.848	-3.574	0.59	1054
		(1.73)	(1.69)	(-3.49)	(-3.80)	(-1.31)	(-8.53)	(.56)	(-2.35)	(-1.98)	(8.85)	(6.67)	(-2.01)	(-4.02)	(-7.24)	(-9.54)		
Footwear	-27.34	0.598	0.405	-0.072	-0.073	0.008	-1.272	0.853	-1.34E-04	-1.51E-05	1.842	2.032	0.032	-1.293	-5.751	-1.668	0.6	976
		(1.84)	(1.27)	(-3.67)	(-3.07)	(.24)	(-8.31)	(1.35)	(-8.42)	(-.80)	(5.76)	(6.23)	(.10)	(-4.14)	(-13.24)	(-4.46)		
Wood	-19.33	-0.981	0.540	-0.015	0.080	-0.042	-1.181	0.859	-5.50E-05	-2.31E-06	1.924	1.460	-0.674	-0.450	-4.708	-2.006	0.53	1085
		(-3.28)	(1.77)	(-.84)	(3.78)	(-1.77)	(-7.70)	(1.34)	(-2.86)	(-.12)	(6.26)	(4.70)	(-2.28)	(-1.50)	(-11.89)	(-5.00)		
Furniture	-28.80	0.775	0.368	-0.084	-0.053	0.004	-0.981	1.303	-1.28E-04	4.54E-06	2.015	1.678	-0.351	-0.771	-4.663	-1.359	0.64	1033
		(2.92)	(1.33)	(-3.91)	(-2.55)	(.20)	(-7.37)	(2.35)	(-7.62)	(.27)	(7.36)	(6.10)	(-1.34)	(-2.92)	(-12.20)	(-3.85)		
Paper	-19.18	0.281	0.126	-0.042	***	***	-1.563	-0.043	-9.85E-05	2.81E-05	2.905	0.783	-1.677	0.008	-1.898	-1.111	0.55	1024
		(2.25)	(.99)	(-2.26)			(-10.41)	(-.07)	(-5.02)	(1.42)	(10.32)	(2.82)	(-6.64)	(.03)	(-4.25)	(-2.80)		
Printing	-34.94	0.736	0.693	-0.077	-0.073	-0.030	-0.780	0.929	-8.59E-05	1.07E-05	2.936	1.383	-1.247	-0.551	-3.497	-1.187	0.66	1076
		(3.29)	(3.03)	(-5.70)	(-4.13)	(-1.66)	(-6.66)	(1.96)	(-6.05)	(.77)	(12.81)	(6.04)	(-5.81)	(-2.51)	(-11.11)	(-4.10)		
Industrial Chemicals	-26.52	0.959	0.101	-0.050	-0.083	-0.003	-0.912	0.257	-1.58E-04	2.37E-05	2.505	1.340	-0.864	-0.198	-1.486	-0.534	0.62	1117
		(3.82)	(.40)	(-3.36)	(-4.10)	(-.17)	(-8.94)	(.47)	(-9.67)	(1.45)	(9.56)	(5.16)	(-3.51)	(-.78)	(-4.39)	(-1.82)		
Other Chemicals	-19.39	1.247	-0.031	-0.006	-0.116	-0.001	-1.056	-0.203	-1.08E-04	8.91E-07	1.826	1.153	-0.207	-0.201	-2.840	-0.096	0.64	1105
		(5.22)	(-.13)	(-.45)	(-6.10)	(-.03)	(-8.47)	(-.39)	(-7.14)	(.05)	(7.33)	(4.67)	(-.86)	(-.85)	(-8.59)	(-.31)		
Petroleum	-30.18	-0.435	0.192	-0.051	***	***	-2.598	-0.839	-7.70E-05	2.42E-06	4.187	1.352	-1.874	-0.056	-1.337	-0.507	0.55	998
		(-2.91)	(1.26)	(-2.37)			(-14.44)	(-.86)	(-3.44)	(.10)	(12.41)	(4.26)	(-6.30)	(-.21)	(-2.39)	(-1.08)		

Table 15
Regression Coefficients of Full Trade Model - 1985 Data
Dependent Variable - Ln(exports + error term)
(t-statistics in parentheses)

Commodity	C	Exportr Wage(wx)	Importr Wage(wm)	wx*wm	wx sqrd	wm sqrd	Ln(Dist)	Adjacent Dummy	Exporter Land p.c.	Importer Land p.c.	Ln(gnp of exporter)	Ln(gnp of importer)	Ln(pop. of exportr)	Ln(pop. of importr)	Exporter Lat.Am.	Importer Lat.Am.	R-sq	Sample Size
Misc.	-32.91	0.808	-0.914	0.001	-0.060	0.075	-1.486	1.332	-9.80E-05	4.25E-05	3.487	1.403	-1.852	-0.813	-0.381	-1.696	0.57	885
Petroleum		(1.87)	(-2.85)	(.06)	(-3.27)	(3.05)	(-9.75)	(2.19)	(-4.84)	(2.17)	(9.71)	(4.49)	(-4.88)	(-2.74)	(-.86)	(-4.24)		
Rubber	-25.91	1.141	0.522	-0.057	-0.108	-0.020	-0.981	0.731	-1.29E-04	3.03E-05	2.125	1.348	-0.481	-0.870	-5.422	-0.566	0.63	1039
		(4.35)	(2.01)	(-3.64)	(-5.20)	(-.98)	(-7.36)	(1.34)	(-6.06)	(1.79)	(7.89)	(5.14)	(-1.87)	(-2.85)	(-14.23)	(-1.74)		
Plastics	-32.41	1.570	0.482	-0.095	-0.131	-0.011	-0.858	1.107	-1.48E-04	5.84E-06	2.050	1.882	-0.477	-1.198	-4.462	-1.357	0.66	1065
		(6.53)	(1.97)	(-6.52)	(-6.94)	(-.56)	(-5.42)	(2.18)	(-9.96)	(.36)	(8.24)	(7.66)	(-2.01)	(-5.06)	(-13.06)	(-4.35)		
Pottery, China	-32.96	0.797	-0.221	-0.062	-0.084	0.048	-0.842	1.210	-1.56E-04	4.49E-05	2.173	1.935	-0.184	-1.123	-3.328	-1.567	0.62	1033
		(2.90)	(-.61)	(-3.82)	(-3.98)	(2.28)	(-6.35)	(2.19)	(-8.84)	(2.72)	(7.78)	(7.14)	(-.69)	(-4.29)	(-8.86)	(-4.54)		
Glass	-30.55	1.788	-0.029	-0.036	-0.181	0.014	-0.981	0.729	-1.84E-04	3.02E-05	2.156	1.657	-0.242	-0.873	-2.567	-1.110	0.61	1026
		(6.53)	(-.10)	(-2.20)	(-6.54)	(.66)	(-7.03)	(1.29)	(-9.83)	(1.75)	(7.48)	(5.86)	(-.89)	(-3.27)	(-8.27)	(-3.15)		
Other Non-metallic	-24.00	2.257	-0.517	-0.078	-0.174	0.064	-1.453	0.233	-1.38E-04	5.27E-05	1.400	2.072	0.396	-1.152	-3.036	-1.186	0.66	1043
		(8.74)	(-1.96)	(-5.07)	(-8.80)	(3.09)	(-11.18)	(.43)	(-8.78)	(3.24)	(5.13)	(7.86)	(1.53)	(-4.57)	(-7.95)	(-3.56)		
Iron & steel	-32.48	1.115	0.296	-0.077	-0.128	0.013	-1.484	-0.042	-8.84E-05	1.35E-06	3.734	0.823	-1.875	0.189	-2.589	-1.106	0.6	1031
		(3.67)	(.96)	(-4.17)	(-5.40)	(.55)	(-9.56)	(-.07)	(-4.85)	(.67)	(11.39)	(3.01)	(-5.42)	(.64)	(-5.63)	(-2.83)		
Nonferrous Metal Prod.	-30.53	0.749	-0.004	-0.062	-0.057	0.002	-1.489	-0.155	-5.35E-05	-2.62E-06	2.736	1.891	-1.127	-0.573	-0.790	-1.884	0.51	1057
		(2.26)	(-.01)	(-3.17)	(-2.16)	(.06)	(-8.64)	(-.22)	(-2.54)	(-.12)	(7.85)	(5.52)	(-3.36)	(-1.75)	(-1.70)	(-4.33)		
Metal scrap	-28.89	-0.395	1.149	-0.048	0.073	-0.098	-1.566	2.427	-1.28E-05	-9.42E-05	2.525	1.358	-1.418	0.080	-0.406	-1.267	0.48	796
		(-.92)	(2.63)	(-1.82)	(2.32)	(-3.04)	(-7.99)	(3.19)	(-.51)	(-3.18)	(5.90)	(2.98)	(-3.48)	(.14)	(-.79)	(-1.91)		
Fabricated Metal Prod.	-27.37	0.779	0.131	-0.087	-0.073	0.013	-0.817	0.753	-8.89E-05	1.89E-05	2.482	1.399	-0.846	-0.614	-6.017	-1.070	0.67	1097
		(3.40)	(.56)	(-4.91)	(-4.02)	(.70)	(-6.67)	(1.51)	(-8.02)	(1.27)	(10.31)	(5.92)	(-3.67)	(-2.70)	(-15.86)	(-3.56)		
Machinery	-34.48	0.412	0.277	-0.052	-0.056	-0.014	-0.786	-0.0005	-7.34E-05	4.78E-06	3.577	1.291	-1.933	-0.278	-3.453	-0.670	0.71	1116
		(1.61)	(1.21)	(-3.88)	(-3.06)	(-.74)	(-6.46)	(-.001)	(-5.09)	(.33)	(15.17)	(5.49)	(-8.51)	(-1.22)	(-11.26)	(-2.81)		
Electical Machinery	-36.88	0.831	0.400	-0.064	-0.069	-0.021	-0.451	0.836	-1.36E-04	-8.99E-06	3.019	1.709	-1.505	-0.785	-2.784	-1.342	0.65	1117
		(3.49)	(1.67)	(-5.98)	(-3.63)	(-1.07)	(-3.81)	(1.21)	(-8.98)	(-.56)	(12.16)	(6.93)	(-6.30)	(-3.30)	(-8.64)	(-4.27)		
Transport Equipment	-38.11	1.191	0.198	-0.081	-0.098	0.007	-1.028	0.322	-8.86E-05	-1.04E-05	3.331	1.671	-1.274	-0.631	-2.235	-1.108	0.66	1098
		(4.47)	(.73)	(-5.10)	(-4.54)	(.32)	(-7.47)	(.56)	(-5.30)	(-.80)	(12.05)	(6.09)	(-4.80)	(-2.39)	(-8.06)	(-3.18)		
Profess. & Scientific	-34.70	1.509	0.308	-0.055	-0.122	-0.022	-0.466	0.479	-8.03E-05	8.42E-06	2.402	1.636	-0.805	-0.551	-3.830	-1.086	0.72	1102
		(6.72)	(1.35)	(-4.12)	(-6.81)	(-1.19)	(-4.02)	(.98)	(-4.27)	(.44)	(10.31)	(7.06)	(-3.59)	(-2.46)	(-12.46)	(-3.89)		
Other Manufact.	-30.74	1.688	0.696	-0.067	-0.140	-0.025	-0.456	0.878	-8.03E-05	-5.51E-06	1.507	1.877	0.255	-1.004	-4.202	-1.460	0.65	1105
		(6.95)	(2.81)	(-6.02)	(-7.23)	(-1.29)	(-3.85)	(1.26)	(-5.18)	(-.35)	(6.02)	(7.49)	(1.06)	(-4.16)	(-12.73)	(-4.56)		

*** Quadratic wage terms rejected by partial F-test at 10% significance level.

Figure 1

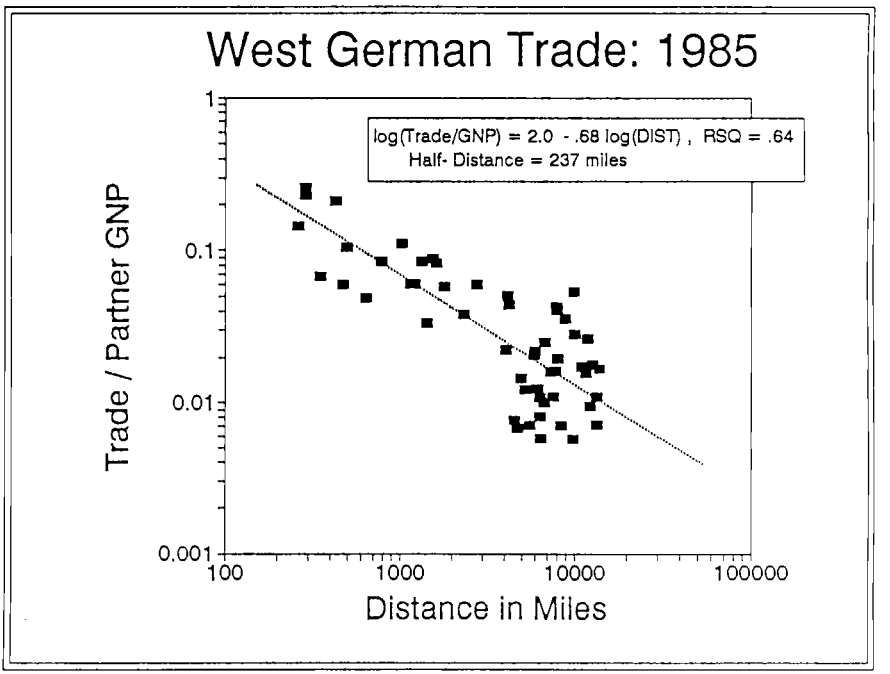
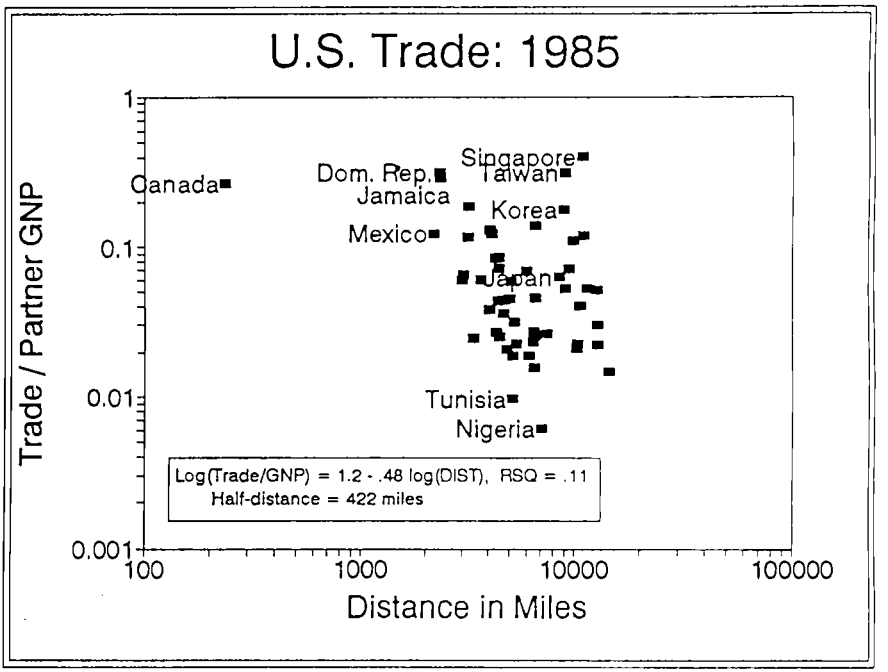
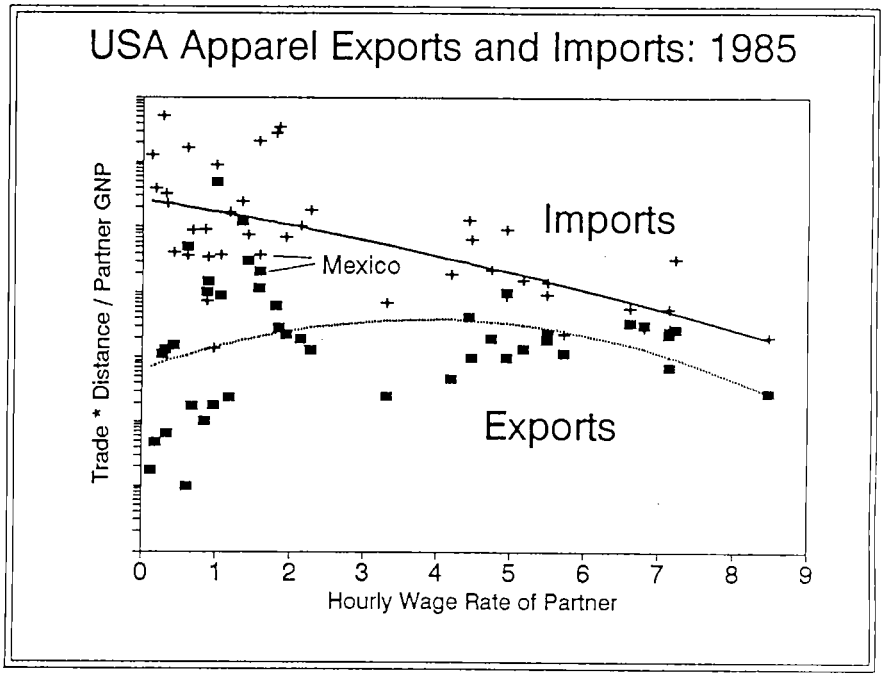

West German Trade: 1985
log(Trade/GNP) = 2.0 - .68 log(DIST) , RSQ = .64
Half- Distance = 237 miles
Trade / Partner GNP
1
0.1
0.01
0.001
100
1000
10000
100000
Distance in Miles

Figure 2


U.S. Trade: 1985
Trade / Partner GNP
1
0.1
0.01
0.001
Canada
Dom. Rep.
Jamaica
Mexico
Singapore
Taiwan
Korea
Japan
Tunisia
Nigeria
Log(Trade/GNP) = 1.2 - .48 log(DIST), RSQ = .11
Half-distance = 422 miles
100
1000
10000
100000
Distance in Miles


USA Apparel Exports and Imports: 1985
Trade * Distance / Partner GNP
Imports
Mexico
Exports
0
1
2
3
4
5
6
7
8
9
Hourly Wage Rate of Partner

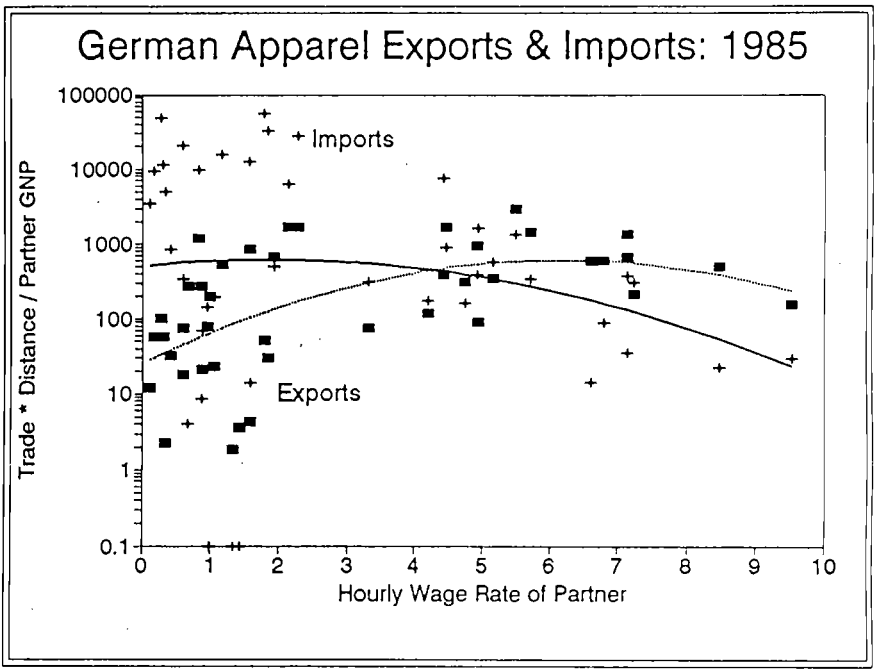
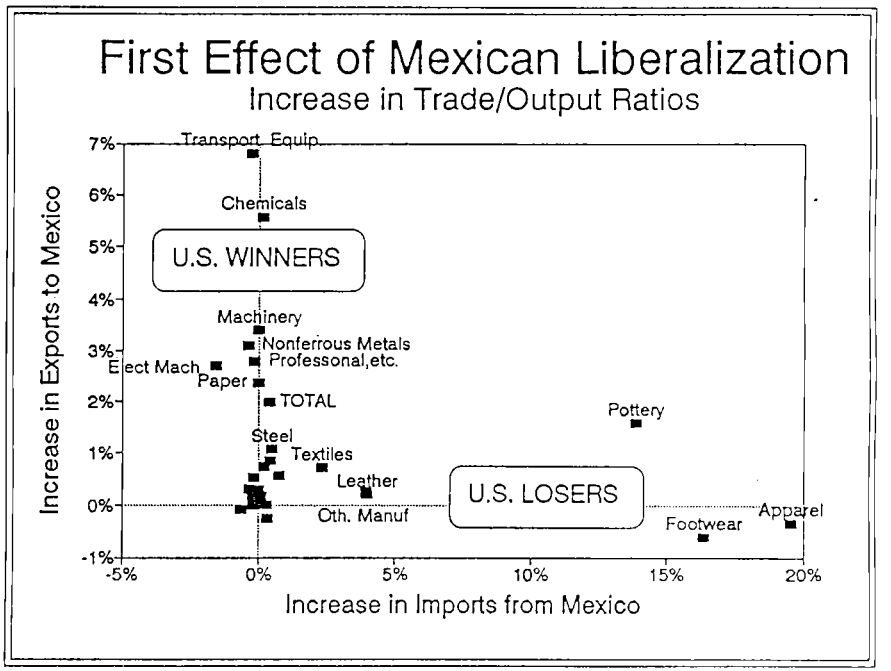

German Apparel Exports & Imports: 1985
Trade * Distance / Partner GNP
100000
10000
1000
100
10
1
0.1
Imports
Exports
0
1
2
3
4
5
6
7
8
9
10
Hourly Wage Rate of Partner

Figure 5


First Effect of Mexican Liberalization
Increase in Trade/Output Ratios
Increase in Exports to Mexico
Increase in Imports from Mexico
7%
6%
5%
4%
3%
2%
1%
0%
-1%
-5%
0%
5%
10%
15%
20%
Transport. Equip.
Chemicals
U.S. WINNERS
Machinery
Nonferrous Metals
Professonal,etc.
Elect Mach.
Paper
TOTAL
Steel
Textiles
Leather
Oth. Manuf
U.S. LOSERS
Pottery
Apparel
Footwear

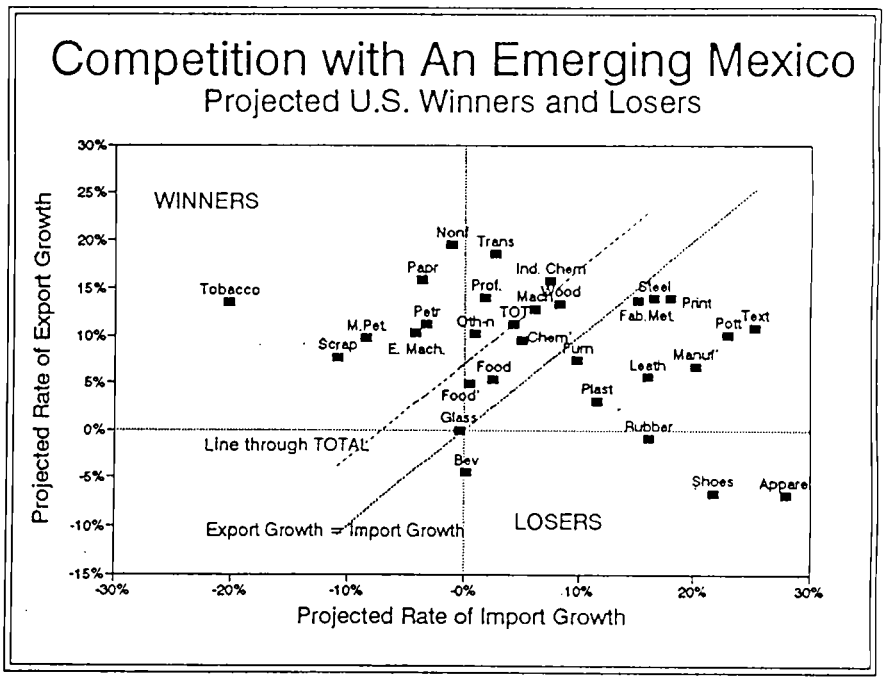
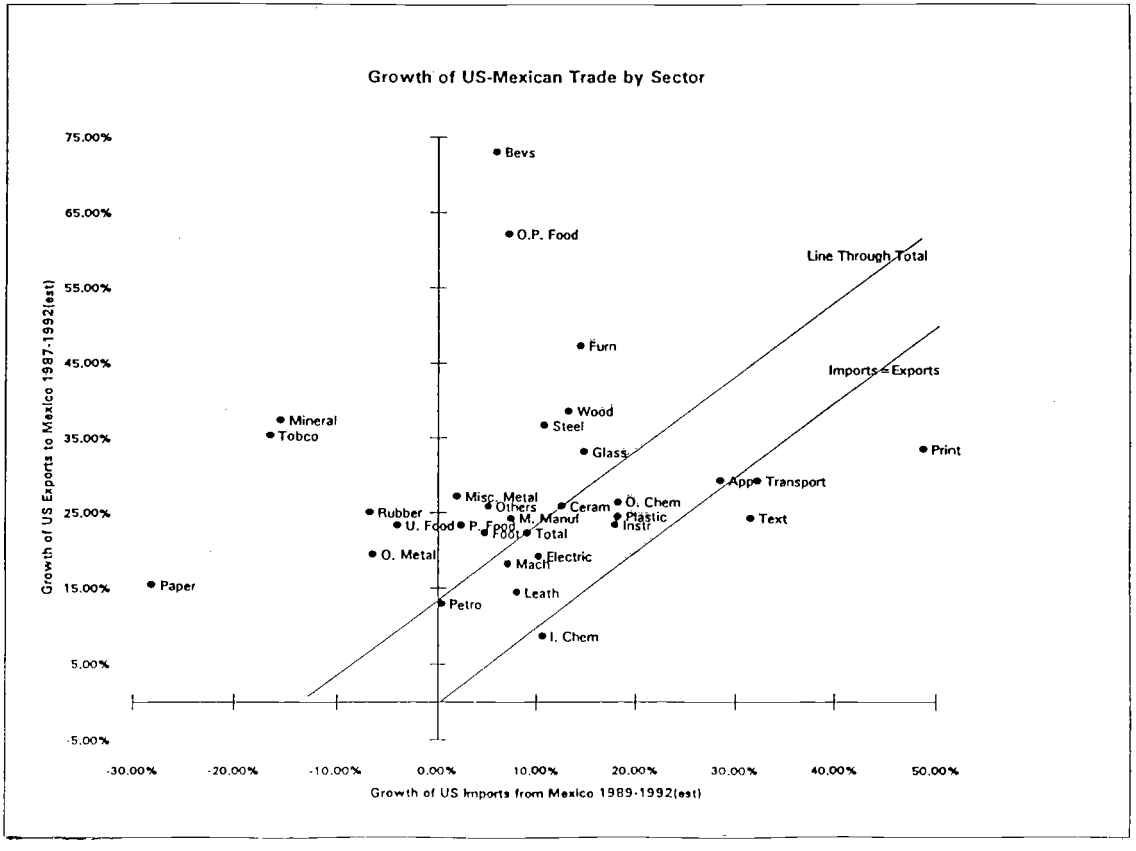

Competition with An Emerging Mexico
Projected U.S. Winners and Losers
WINNERS
LOSERS
Tobacco
Nonf
Trans
Papr
Ind. Chem
Prof.
Mach
Wood
Steel
Print
Fab.Met
Petr
TOT
Text
Pott
M.Pet
Oth-n
Scrap
E. Mach
Chem
Furn
Food
Manuf
Leath
Food'
Plast
Glass
Rubber
Line through TOTAL
Bev
Shoes
Appare
Export Growth = Import Growth
30%
25%
20%
15%
10%
5%
0%
-5%
-10%
-15%
-30%
-20%
-10%
-0%
10%
20%
30%
Projected Rate of Export Growth
Projected Rate of Import Growth

Figure 7


Growth of US-Mexican Trade by Sector
75.00%
65.00%
55.00%
45.00%
35.00%
25.00%
15.00%
5.00%
-5.00%
Growth of US Exports to Mexico 1987-1992(est)
-30.00%
-20.00%
-10.00%
0.00%
10.00%
20.00%
30.00%
40.00%
50.00%
Growth of US Imports from Mexico 1989-1992(est)
Bevs
O.P. Food
Furn
Wood
Steel
Glass
Mineral
Tobco
Print
App
Transport
Misc. Metal
Others
Ceram
O. Chem
Rubber
U. Food
P. Food
M. Manuf
Plastic
Instr
Text
Food
Total
O. Metal
Electric
Mach
Paper
Leath
Petro
I. Chem
Line Through Total
Imports = Exports