

Southwest Economy



Michael Short

Beating Border Barriers in U.S. – Mexico Trade

Over the past 15 years, U.S. trade with Mexico has increased 400 percent—from \$48 billion to \$239 billion (*Chart 1*)—yet neither Mexico nor the United States has made the adjustments necessary to handle the growing traffic. Unlike U.S. commerce with any other nation but Canada, U.S.–Mexico trade is mostly truck trade. Whether truckers use busy Texas, California or Arizona crossings, they face congestion and long waits usually associated with government inspections and customs processing.

Restrictions on cross-border trucking add to the problems. Because the United States refuses to open its border to Mexican long-haul trucks—despite commitments it made under NAFTA—shippers have to rely on short-haul trucks to shuttle cargo across the border. These trucks haul in one direction only, clogging bridges, roads and inspection stations with empty trucks. It doesn't help that the clearing of trucks is still paper-based and the various government agencies operate independently.

As a partial solution, transportation researchers have recommended a prototype border facility that would involve electronic preclearing of northbound

(Continued on page 2)

A Note to Our Readers

The three feature articles in this issue were written before the tragic events of September 11. The delays at our borders with both Mexico and Canada subsequent to September 11 underscore the thrust of the article on U.S.–Mexico trade. And the sharp decline in stock prices the week of September 17, when the markets reopened, reinforces John Duca's conclusion that the stock market plays a very important role in the U.S. economy.

Harvey Rosenblum
Senior Vice President and
Director of Research
September 24, 2001

How Does the Stock Market Affect the Economy?

Stock wealth plays a role in most mainstream econometric models of the U.S. economy. For example, according to the Federal Reserve Board's model, a 20 percent decline in stock prices lowers GDP by about 1.25 percent after one year. Nevertheless, economists disagree about the extent to which lower stock prices directly slow growth and the extent to which they simply reflect worsening fundamentals that are slowing the economy.

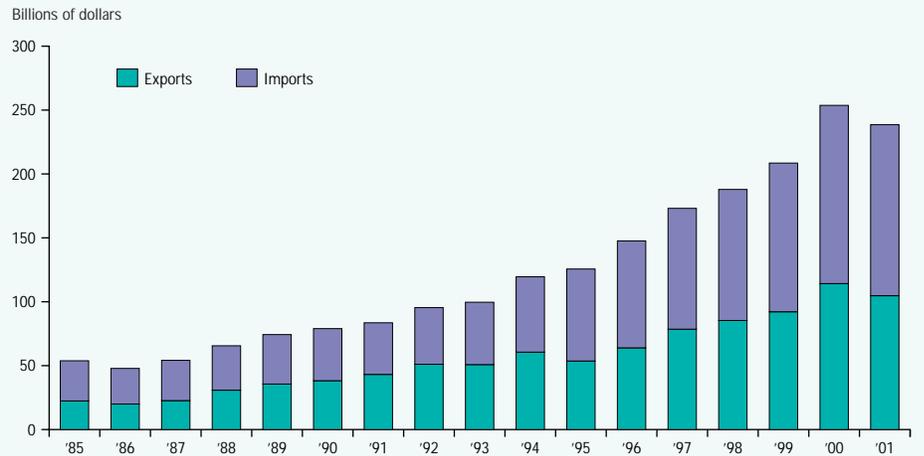
This article briefly addresses the controversy surrounding these issues. First, I review how stock prices may affect firms and discuss some of the uncertainties about these effects. Then, I turn to the effects of stock wealth on households' consumption, discussing the mainstream view and several criticisms of it. Although some of these criticisms have validity and there is uncer-

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Surface trade with Mexico continues to be markedly more expensive than trade with Canada, our other NAFTA partner.

Chart 1

U.S. Trade with Mexico Surges



NOTE: 2001 value based on first six months, annualized.

SOURCE: Census Bureau, Foreign Trade Statistics.

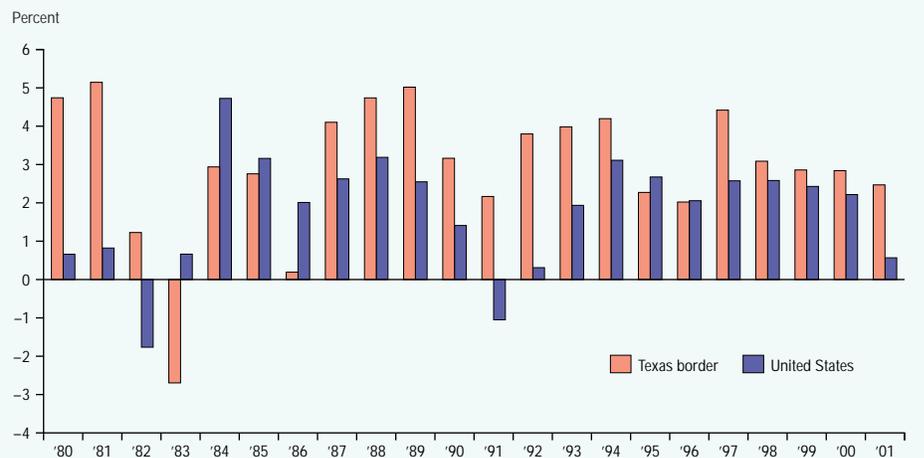
trucks and their cargo as well as better coordination between U.S. agencies at the border. While the prototype promises greater efficiency, researchers admit that its implementation is still years away, and thus, after almost seven years of NAFTA, old processes persist. The result is that surface trade with Mexico continues to be markedly more expensive than trade with Canada, our other NAFTA partner.

The costs of trade, as well as the benefits, are felt most in Texas since it

bears the brunt of U.S.–Mexico trade. In fact, 40 percent of the total value of U.S.–Mexico overland merchandise trade passes through just one Texas city, Laredo. On the Texas–Mexico border as a whole, 15,000 commercial trucks, 205,000 vehicles and 97,000 pedestrians cross each day. As a result of the growing trade, the transportation, distribution, warehousing and federal government sectors have expanded rapidly on the U.S. side of the border. The strong peso and growing northern Mexico popula-

Chart 2

Texas Border Job Growth Outpaces Nation



NOTES: Annual average employment growth; 2001 calculated from January–July employment, annualized. Texas border includes the following counties: Cameron, Hidalgo, Webb, Maverick, Val Verde and El Paso.

SOURCES: Bureau of Economic Analysis Regional Economic Information System; Texas Workforce Commission; Bureau of Labor Statistics; Federal Reserve Bank of Dallas.

Table 1

Top Ten U.S. Imports from Mexico: 1983 Versus 2000

Rank	1983	2000
1	Crude oil	All motor vehicles
2	Telecommunications equipment	Crude oil
3	Oil (not crude)	Telecommunications equipment
4	Internal combustion piston engines	Automatic data processing machines
5	Vegetables, roots and tubers	Equipment for distributing electricity
6	Crustaceans	Special purpose motor vehicles
7	Natural gas, whether or not liquefied	Parts and accessories of motor vehicles
8	Equipment for distributing electricity	Television receivers
9	Silver, platinum and other platinum group metals	Special transactions not classified by kind
10	Electrical apparatus for switching or protecting	Electrical apparatus for switching or protecting

NOTE: Rank based on customs value.

SOURCE: U.S. Department of Commerce, International Trade Administration, U.S. Foreign Trade Highlights.

tion have also driven retail trade, as increasing numbers of Mexican residents cross the border to shop in U.S. stores. Chart 2 shows rates of Texas border job growth since 1986 outstripping the nation in every year except 1995 and 1996, when Mexico was still recovering from the 1994 peso devaluation.

Changing Trade

Before opening up to trade in the late 1980s, Mexico exported mostly raw materials. As shown in Table 1, its top exports included oil, natural gas, vegetables, seafood and silver. Since then, Mexico has moved far up the chain of production. Besides oil, Mexico's top exports now include world-class manufactured goods such as motor vehicles and electrical equipment. In the late 1980s, the elimination of Mexico's import substitution policies spurred profound transformation and growth in Mexico's manufacturing sector. Trade protectionism had nurtured inefficiency and widespread manufacturing quality-control problems, but after Mexico joined the General Agreement on Tariffs and Trade (GATT) in 1986, trade became a quickly growing share of the Mexican economy. Between 1986 and 2000, the exports share of Mexican GDP rose from 16 percent to 29 percent, with almost 90 percent of Mexican exports destined for the United States.

Liberalized trade and other economic reforms meant foreign investment began to flow into Mexico. Many foreign firms set up manufacturing and assembly plants known as maquiladoras. As Chart 3 shows, foreign direct investment along with ma-

quiladora employment began to trend upward in 1986 and more steeply in 1994, coinciding with the signing of NAFTA. Maquiladoras—which were initiated by the Mexican government in the 1960s—import inputs duty-free and produce or assemble goods for export. Because of special U.S. regulations, these firms pay tariffs only on the value added by assembly of the products re-exported to the United States. Under NAFTA, the value added to maquiladora output is typically excluded from duties, while inputs have to be of North American origin to be duty-free.¹

The changing nature of U.S.–Mexico trade, as well as the growth and agglomeration of the maquiladora industry, determines the nature of cross-border trade flows. Where the maquiladora industry is heavily concentrated, as it is in Ciudad Juárez (across from El Paso) and Tijuana (across from San Diego), maquiladora trade accounts for as much as 80 percent of import trade with Mexico.² At crossings in Texas' Rio Grande Valley and in Arizona—where agricultural imports are still prevalent—maquiladora trade accounts for about 50 percent of import trade.

Maquiladoras determine both the volume and type of trade through their corresponding ports of entry. Where electronics producers dominate, as in Tijuana, trade inflows consist largely of electrical appliances such as televisions and sound equipment. In Ciudad Juárez, where maquiladoras are also part of the auto and apparel industry, maquiladora trade consists of motor vehicle parts, motor vehicles, electronics and clothing.

After Mexico joined the General Agreement on Tariffs and Trade in 1986, trade became a quickly growing share of the Mexican economy.

As truck trade has grown, congestion has been magnified because the increase in shipments has been mirrored by an increase in empty trucks.

The port of Laredo, because of its strategic location along the main highway leading to Mexico City, is unique. Although Nuevo Laredo has its share of maquiladoras, the majority of trade through Laredo is coming from or going to the Mexican interior. More than 80 percent of the southbound trade through Laredo goes to the Mexican interior, principally to Mexico City.³

Barriers to Trade

Despite the impressive gains in volume and composition of U.S.–Mexico trade, barriers to trade persist and even multiply as new obstacles are erected.⁴ The restricted movement of commercial vehicles across the border, Mexican customs broker practices, limited agency staffing and inspection facilities, and cumbersome U.S. customs processing and inspections all cost shippers time and money. These transactions costs reduce the volume of trade and increase the price of traded goods. Both producers and consumers bear the burden of higher transactions costs.

On the Southwest border, clearing international freight entails many steps. The extent of transactions costs, however, depends on the direction of trade. In general, northbound trade incurs more costs from U.S. government inspections, many of which are meant to deter the entry of illegal drugs and unauthorized immigration. Southbound trade, although

also subject to government inspections, is most encumbered by Mexican customs broker practices. In both cases, transactions costs include duties, broker and customs user fees, value-added taxes, freight forwarding and short- and long-haul service costs, bridge tolls and wait times for inspections.

Empty Trucks Everywhere. As truck trade has grown, congestion has been magnified because the increase in shipments has been mirrored by an increase in empty trucks. A March 2000 General Accounting Office (GAO) study notes that 47 percent of 3.6 million containers that crossed the border from Mexico in fiscal year 1998 were empty.⁵ As shown in Chart 4 for northbound shipments, all major ports of entry had at least 25 percent empty trucks and most had greater than 40 percent. The GAO study points out that government officials must process empty trucks as they do loaded ones to ensure compliance with U.S. laws and regulations. The large number of empty trucks is ostensibly slowing down cross-border trade.

The empty trucks are mainly short-haul carriers, either returning from or on their way to shuttling a load across the border. The requirement that Mexican customs brokers preclear trucks coming into Mexico—and the fact that they do so on the U.S. side of the border—is an important cause of short-haul trucking. This does not, however, entirely explain

Chart 3

Mexico Foreign Direct Investment and Maquiladora Employment Rise

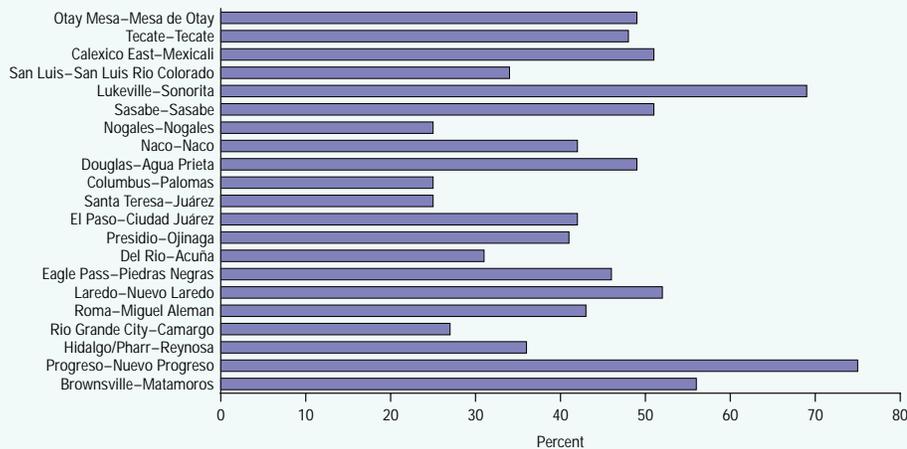


NOTE: Foreign direct investment data are quarterly, seasonally adjusted.

SOURCES: Banco de México; Instituto Nacional de Estadística, Geografía e Informática.

Chart 4

Empty Containers Are a Big Share of Border Truck Traffic



NOTE: Northbound trucks, fiscal year 1998.

SOURCE: "U.S.-Mexico Border: Better Planning, Coordination Needed to Handle Growing Commercial Traffic," General Accounting Office, March 2000 (<http://www.gao.gov/cgi-bin/gettrpt?rptno=NSIAD-00-25>).

the practice of returning without a load. In the trucking industry, backhauling—the practice of hauling a load on the return trip—is the most efficient mode of operation. Competitive markets should make truck operators efficient, that is, induce them to find backhauls. The lack of backhauling on the border suggests the short-haul, or drayage, market is not very competitive. Mexican customs broker practices may be a contributing factor.

Mexican Customs Broker Practices.

Because of unique Mexican customs laws that place liability on the broker and not the importer, the process of overland cross-border trade depends heavily on the practices of the Mexican customs broker. The broker's main function is to provide a document called a *pedimento*, which is required for all shipments entering and leaving Mexico. The broker must also handle the payment of import duties, which are due at time of crossing. These laws have several implications. Legal liability implies brokers have powerful incentives to detain cargo and conduct detailed inspections. Also, since they are the only agents allowed to forward freight into and out of Mexico, Mexican customs brokers face no competition from U.S. brokers and have considerable pricing power, as well as control over when and how goods are transported.⁶

As an example, a southbound truck typically drops its load at a border termi-

nal. A Mexican customs broker sends a freight forwarder to bring the cargo to the customs broker's warehouse, where it is unloaded, inspected, appraised and classified.⁷ The paperwork, duties and fees are completed and paid. Usually the load is stored in the warehouse while the freight forwarder and the customs broker make preparations for the crossing. A short-haul truck then takes the shipment over the border and through Mexican customs and government inspections. The drayman then drops the load in a lot on the Mexican side and returns empty to the United States. The load is eventually transferred onto a Mexican truck that completes the delivery. In sum, the load is transferred at best twice but, most likely, three times involving three to four parties. A report by the U.S. Department of Transportation recently estimated that this process adds three to five days to a southbound move.⁸

The bottom line is that Mexican customs brokers are closely allied with freight forwarders and drayage carriers, and competition between these service providers is limited. Inspection, storage, freight forwarding and drayage all earn brokers a monetary return, so they have little incentive to minimize these activities to expedite processing. Border cities also earn substantially more revenue in bridge tolls as a result of the empty truck traffic.

In contrast, U.S. and Canadian brokers play a limited role in the border-

Mexican customs brokers face no competition from U.S. brokers and have considerable pricing power, as well as control over when and how goods are transported.

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crossing process. Since U.S. trucks can deliver to Canada, direct lining implies brokers don't have to arrange for the transfer of cargo. Also, they can operate in each other's countries—U.S. brokers can cross into Canada to forward freight back into the United States and vice versa. The competition keeps fees down. Moreover, the government doesn't hold brokers liable for the freight they handle, and the paperwork is less onerous. Finally, in the United States and Canada, duties don't have to be paid at the border. Importers can pay duties by invoice for up to 10 days after importation.

Cumbersome Inspections. On both sides of the U.S.–Mexico border, the sheer volume of commercial trucks has overwhelmed government agencies charged with inspections and exacerbated inefficiencies in the inspection processes. In its border traffic study, the GAO found six primary factors that contribute to northbound congestion at the border. “They are multiple inspection requirements, difficult staffing and human resource problems, limited use of automated management information systems for processing commercial traffic, insufficient inspection space, inadequate roads connecting ports of entry, and limited coordination and planning among U.S. inspection agencies and between the United States and Mexico.”⁹

The study notes that the lack of coordination between agencies within countries, as well as across countries, stands in the way of reducing shippers' transactions costs. Agencies in the United States and Mexico generally do not share facilities, but operate at different locations and during different hours. Depending on the type of load, trucks have to pass through customs, agriculture, drug, immigration and safety inspections. With 50 to 100 percent increases in commercial vehicle traffic since 1994, government funding for additional staff and facilities has fallen behind. Processing is still paper-based as federal agencies have also been slow to adopt new “intelligent transportation” technologies that could drastically reduce processing times.

Solutions for Better Border Trade

The cumbersome processing of northbound shipments could be improved by better cooperation among U.S. govern-

ment agencies and greater use of available technology. The GAO recommends that the customs commissioner oversee the entire processing function to better coordinate inspections for northbound trucks. The customs commissioner should also work with the State Department's Border Liaison Mechanism to help coordinate activities, such as operating hours, with the Mexican side. The GAO report also recommends using this joint effort to determine how technology could improve efficiency. Another suggestion is collecting data on wait times to better model the border congestion problem and potential solutions.

Regarding the adoption of advanced technology, researchers at the Texas Transportation Institute at Texas A&M University and at the Center for Transportation Research at the University of Texas at Austin have developed a prototype inspection station for northbound traffic that heavily utilizes new technologies.¹⁰ The prototype station combines the use of the International Trade Data System, a consolidated electronic database currently under development by the Treasury Department, and Intelligent Transportation Systems, which transpond data back and forth from truck to border processing agent. By digitizing the paper trail, the system promises to significantly reduce delays without compromising the objectives of U.S. law enforcement and other government agencies. Rather than retrofit an existing border port, the researchers hope to apply the prototype to the next new border facility completed along the Texas–Mexico border.

Another important improvement would be to enforce the NAFTA trucking agreement and allow Mexican trucks to transport goods directly into the United States and likewise for U.S. trucks into Mexico. It would increase the incidence of direct lining and decrease the demand for drayage, storage and warehousing. The reduction in drayage carriers would cut costs to shippers and, since these carriers normally do not backhaul, would reduce congestion on the border by lowering the number of empty trucks. At the same time, however, the demand for backhauls—which increases with distance traveled—would likely increase the demand for certain transportation brokerage services.¹¹

Are Mexican Trucks Safe?

Implementation of the NAFTA trucking agreement is surrounded by controversy over the safety of Mexican trucks. Existing data suggest that while there are plenty of unsafe Mexican trucks, it is unlikely that those trucks will be used for long hauls into the U.S. interior once the border is opened.¹

The most widely cited claim that cross-border trucks are unsafe is based on a 36 percent failure rate of Mexican short-haul trucks chosen for inspection at border crossings in fiscal year 2000.² There are two problems with applying this number to the trucks that would come into the United States under open borders. First, short-haul trucks—since they don't have to go very far—are older and more faulty. Long-haul trucks would necessarily be newer and in better condition. Second, because inspections are nonrandom, the trucks not chosen for inspection have lower failure rates than those that are selected. In California, for example, where inspections are more frequent and rigorous, the failure rate is only 26 percent. This number compares favorably with a 24 percent nationwide failure rate for U.S. trucks.³

There are some data on Mexican long-haul trucks that operate in the United States, although again, these are not based on a random sample. These trucks are either circulating illegally or belong to companies with special arrangements—like those granted operating authority during a brief period of open borders between 1980 and 1982. In any case, Mexican trucks that enter the U.S. interior actually have lower failure rates than U.S. trucks: 19 percent versus 24 percent.⁴

To sum up, the argument that cross-border Mexican trucks would represent a safety hazard is overblown. Implementation of the NAFTA trucking agreement, in combination with adequate funding for systematic truck safety inspections, would ensure that the benefits of open borders to trucks far outweigh the costs.

Notes

¹ See Russell Roberts, "How Safe Is That Trucker in the Window?" The Library of Economics and Liberty, March 2001, <http://www.econlib.org/library/Features/Robertstruck.html>.

² Office of the Inspector General, "Interim Report on the Status of Implementing the North American Free Trade Agreement's Cross-Border Trucking Provisions," U.S. Department of Transportation, Report no. MH-2001-059, May 8, 2001.

³ Ibid.

⁴ Office of the Inspector General, "Mexico-Domiciled Motor Carriers," U.S. Department of Transportation, Audit Report no. TR-2000-013, November 4, 1999.

Opening the border to trucks, however, will not change things overnight. James Giermanski, a border transportation and logistics expert and professor at Belmont Abbey College, argues that initially the implementation of the trucking agreement would probably only affect northbound shipments, as some Mexican trucks take advantage of the new rules and travel to their final destination in the United States.¹² For southbound shipments, Giermanski predicts the Mexican customs laws will allow brokers to continue to delay shipments, making it unprofitable for the long-haul shipper to wait for preclearance; thus, the drayage system will continue. In addition, the poor road quality; expensive tolls; lack of service, parts and repair facilities; expensive fuel; and high incidence of hijacking will all deter a large or sudden incursion by U.S. trucking firms into the Mexican interior.

One hopeful development is the creation of foreign trade zones within Mexican border states.¹³ Giermanski believes more foreign trade zones, along with

recent questions concerning the U.S. federal tax liability of Mexican customs brokers who operate in the United States, may begin to shift Mexican customs broker operations south of the border.¹⁴ This movement would significantly reduce southbound drayage and empty truck crossings. Giermanski concludes, "If all goes really well...I expect we can see the reduction and eventual elimination of drayage as we know it within two to three years of the border opening, which will concomitantly put pressure on the Mexican broker system to relocate to the Mexican side and enhance the development and use of Mexican foreign trade zones, especially along the border."

Conclusion

U.S.–Mexico trade has grown quickly since Mexico joined GATT in 1986 and NAFTA in 1994. As trade has grown, the nature of trade has changed as well. Through the strong growth of the maquiladora industry, Mexico and the United States are now engaged in a

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—James Giermanski

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sophisticated system of production sharing that has contributed to economic growth on both sides of the border. The increased trade has generated some improvements in processing and inspections; however, significant border barriers remain. Shippers face many unnecessary costs, and steps can be taken to improve the situation.

Solutions to bottlenecks in cross-border transportation require changes in both government and business practices. The cost to border cities may be less growth in the transportation and warehousing sector. The payoff, however, as local resources are put to more efficient use, will be reduced air pollution and congestion and a competitive edge in attracting shippers, shoppers and new industrial firms. The ultimate return, however, will go to U.S. and Mexican consumers as prices of traded goods fall.

— Pia M. Orrenius
Keith Phillips
Benjamin Blackburn

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Notes

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¹ For more detail on the rules that affect maquiladora operations and how those have changed under NAFTA, see Lucinda Vargas, "NAFTA, the U.S. Economy and Maquiladoras," Federal Reserve Bank of Dallas *Business Frontier*, Issue 1, 2001.

² See the study "Facilitating Trade and Enhancing Transportation Safety," Intelligent Transportation Systems, U.S. Department of Transportation, April 2001.

³ In 1995, more than half Laredo's exports (51.4 percent) were destined for Mexico City and the state of Mexico, 33.7 percent for other interior states and 14.9 percent for the border states of Tamaulipas and Nuevo León. (Source: "Maquiladora Ports Information Report," Border Trade Institute, Texas Center for Border Economic and Enterprise Development, Texas A&M International University).

⁴ The U.S. Congress' recent moves to block implementation of the NAFTA trucking agreement are an example of new barriers. See the box titled "Are Mexican Trucks Safe?"

⁵ See "U.S.–Mexico Border: Better Planning, Coordination Needed to Handle Growing Commercial Traffic," U.S. General Accounting Office, March 2000, p. 4. The report can be accessed on the Internet at <http://www.gao.gov/cgi-bin/gettrpt?rptno=NSIAD-00-25>.

⁶ For a detailed description of the role of the Mexican customs broker, see Mitch McGhee and James Giermanski, "Mexican Customs Brokers and Their U.S. Freight Forwarding Interests: Is the Broker Personally Liable for U.S. Federal Income Tax?" *Tax Notes International*, January 22, 2001.

⁷ See James Giermanski, "Texas to Mexico: A Border to Avoid," *Journal of Borderlands Studies* 10 (2), 1995, pp. 33–53.

⁸ See the Department of Transportation study "Facilitating Trade and Enhancing Transportation Safety."

⁹ See p. 14 of GAO study. Interestingly, few border trade studies cite a lack of bridges. Spending on bridge infrastructure has been robust, and several reports highlight bridges that are currently underutilized. For example, see Keith Phillips and Jay Campbell, "Border Bottlenecks Hamper Trade," Federal Reserve Bank of Dallas *Southwest Economy*, Issue 5, September/October 1998, pp. 9–10; Keith Phillips and Carlos Manzanares, "Transportation Infrastructure and the Border Economy," in *The Border Economy*, Federal Reserve Bank of Dallas, June 2001; and the Giermanski article cited in Note 7.

¹⁰ See Brian Bochner, Bill Stockton, Dock Burke and Robert Harrison, "A Prototype Southern Border Facility to Expedite NAFTA Trucks Entering the United States," paper no. 01-1406, December 8, 2000. The paper is available at http://bordercross.tamu.edu/about/trb_paper_01-0406.stm.

¹¹ The increase in the demand for transportation property brokers has been a defining trend since deregulation of the domestic trucking industry in 1980. These brokers consolidate loads and, more important, arrange for pickup and delivery. The greater incidence of backhauling since deregulation has been key in increasing efficiency in the U.S. trucking industry over the past 20 years. See John T. Jones, *The Economic Impact of Transborder Trucking Regulations*, 1999 (New York: Garland Publishing).

¹² Comments by James Giermanski were taken from "Inefficient Imports and Expensive Exports: The Limitations of Drayage," presented at "The Road Most Traveled: Texas Trade Corridors in the New Economy" conference sponsored by the San Antonio Branch of the Federal Reserve Bank of Dallas, August 3, 2001.

¹³ A foreign trade zone is an area in which imported goods are legally exempt from customs duties. Thus, foreign trade zones along the Mexican side of the border allow imported goods to enter Mexico before being inspected and before customs duties are paid.

¹⁴ See source in Note 6.

How Does the Stock Market Affect the Economy?

(Continued from front page)

tainty about the precise magnitude of stock wealth effects, the evidence, on balance, indicates that sustained movements in stock prices are a channel through which shocks affect the economy.

How Lower Stock Prices Affect Firms

Declining stock prices affect firms in several ways, in addition to impacting their sales to consumers. First, stock price declines, especially those induced by profit warnings, increase shareholder pressure on managers to cut costs by laying off workers and scaling back investment. Nevertheless, it is difficult to sort out an independent stock price effect from the cutbacks in staff and investment that arise from profit-maximizing behavior in an economic downturn.

Second, a large stock price decline, such as that between early 2000 and early 2001, reduces the value of unexercised stock options, which falls as the gap narrows between a company's stock price and the price at which workers can buy stock under an option. However, given the relatively short period in which stock options have been a noticeable part of compensation and the lack of data, it is unclear to what extent workers will bargain for more cash in place of options and how this might affect payroll costs and inflation.

Third, the factors dragging down stock prices, such as a weaker or more uncertain profit outlook, may spur investors to demand higher risk premiums, which boosts the cost of financing business investment. Higher risk premiums can take the form of increased spreads of corporate bond and commercial paper interest rates relative to Treasury yields. They can also lower prices for new stock offered by firms. In addition, the increased uncertainty may spook investors so much that the availability of financing is reduced. In the recent market downturn, this has been manifested in tighter standards for bank loans, a drying up of lower grade corporate bond issuance, increased difficulty in using stock swaps

to finance mergers, a dearth of initial public stock offerings and a sharp slowing of venture capital investment. However, it is difficult to determine just how much a deterioration in financial conditions driven by changes in fundamentals works through a drop in stock prices.

This same concern applies to a fourth, and perhaps most important, way that lower stock prices affect firms' behavior. According to Tobin's q theory of investment, firms have less incentive to invest in new capital if there is a fall in the ratio (q) of the cost of buying existing capital to that of buying new capital. In practice, the numerator of this ratio is typically based on the cost of buying existing firms (stock prices). While this theory is intuitive, it is difficult to sort out how much a change in investment fundamentals affects investment directly rather than indirectly through financial conditions and stock prices.

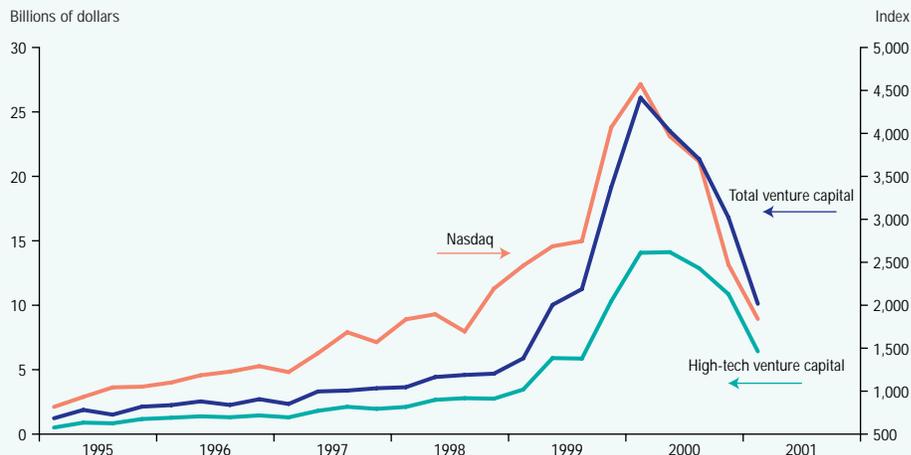
This is important because stock price changes could arise from various factors that have different ultimate effects on investment. For example, a drop in stock prices stemming from a decline in market sentiment (such as many analysts assumed in 1987) would be associated with smaller changes in

investment spending than would stock price swings reflecting changing fundamentals (for example, expected profits), as some analysts have interpreted the experience of late 2000 and early 2001. These problems in identifying the nature and channels of shocks may help account for why the q theory of investment has had a mixed record in tracking investment spending.¹

These concerns do not necessarily rule out stock price effects on business behavior; rather, they raise questions about the magnitude of such effects. The rising importance of venture capital for funding growing businesses also makes it harder to determine these magnitudes. In particular, we lack enough experience to pinpoint how much the Nasdaq decline will affect the venture capital market and thereby slow small business formation. Venture capitalists invest in pools of new or emerging businesses, in which they obtain equity or ownership stakes, with the hope that these firms can eventually issue stock on the Nasdaq. At that point, the liquidity and marketability of their investments rise, allowing them to eventually cash in their winning investments by selling their shares. However, when the Nasdaq tanks, initial public offerings typically slow and new venture capital investments dry up, partly because venture firms see lower expected returns (Chart 1) and partly because private equity holders have less

Chart 1

Venture Capital Financing Is Sensitive to Market Conditions



SOURCES: Venture capital investment data from surveys conducted by PricewaterhouseCoopers and VentureOne; categories grouped by author.

More households are now exposed to the market.... Rising ownership rates imply that changes in equity prices increasingly affect the wealth of families whose spending patterns are presumably more sensitive to wealth changes.

incentive to sell stakes in their company to other investors.²

As the Nasdaq fell in 2000, overall venture capital investing also slowed from the rapid pace of the late 1990s, particularly in the high-tech sector. Other venture capital investment also fell sharply in this period. Nevertheless, because most of this non-high-tech investment is in business and consumer services, particularly in e-business and e-consumer service firms, the decline in this investment is largely an indirect result of the downturn in high tech.

How Lower Stock Prices Affect Households

Aside from directly affecting firms, lower stock prices are associated with slower household spending for two possible reasons. First, lower stock prices are correlated with greater uncertainty and lower confidence, particularly because layoffs typically increase during such periods. Second, stock price changes affect consumer spending through a wealth channel. Indeed, most estimates of stock wealth effects imply that for every \$100,000 decline in stock wealth, annual consumption falls by roughly \$3,000 to \$5,000 over the long run. I refer to this second channel as the conventional stock wealth effect.

However, there is much controversy over the latter channel. Criticisms of the conventional stock wealth effect fall into at least three categories. One is that any observed stock market effect merely picks up expectations or confidence about the future (the first channel mentioned above), and there is no independent wealth effect. A second is that stock wealth is too highly concentrated among the superwealthy for it to affect consumption. Finally, some economists are concerned that estimates of stock wealth effects are too imprecise to be useful.

The foremost criticism of the conventional wealth effect is that any observed link between wealth and spending merely reflects the role of stock prices in picking up expectations or confidence about the future. Some economists, such as Hymans (1970), argue that stock wealth has little effect on consumption after controlling for consumer confidence, implying that stock

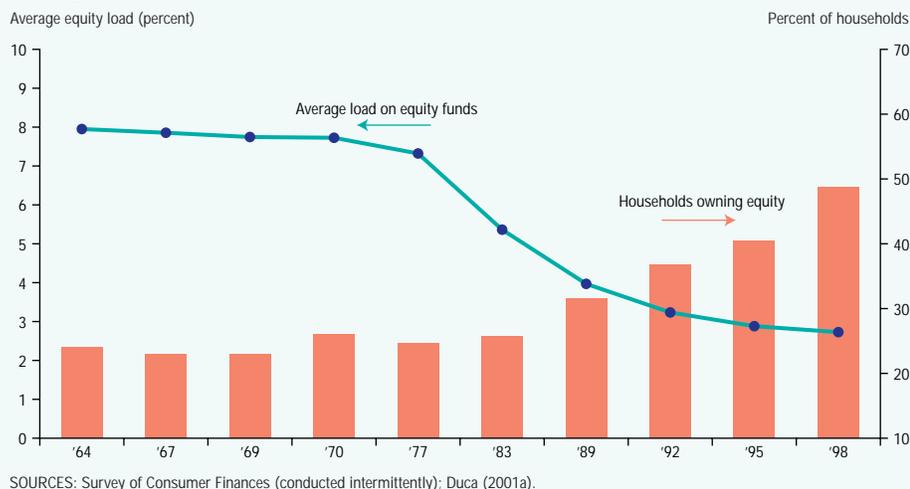
prices affect consumption via sentiment rather than through a wealth channel. More recently, Otoo (1999) finds that stock price changes did not affect the confidence of stock and non-stock owners differently just before and during the stock market downturn of 1997 that was associated with the Asian economic crisis. Otoo interpreted this finding as supporting the view that the information content of stock prices derives largely from expectations of future economic growth. Presumably, if confidence does not differ according to shareholder status during such episodes, then wealth effects may not be important. An argument against this interpretation is that stock prices alter people's expectations of future economic growth, whether or not they own stock.

In addition, using data across different groups of households, two new Federal Reserve studies provide evidence that stock prices affect consumer spending through a wealth channel. Maki and Palumbo (2001) find that the overall decline in the national saving rate was caused by a fall in the saving rate among families in the top 40 percent of the income distribution (those most likely to own stocks) that outweighed a slight rise among the bottom 60 percent. The other study, by Dynan and Maki (2001), finds that the consumer spending of shareholders is positively associated with stock price swings, while the consumption of nonshareholders is not affected.

Another criticism of the wealth effect is that stock wealth is so highly concentrated among the top 1 to 5 percent of families that stock price declines are unlikely to affect spending. According to this view, stock prices substantially affect the wealth of only the very rich, whose spending habits are not altered much by changes in asset values. However, the Maki and Palumbo study indicates that during the stock market boom of the late 1990s, the saving rate fell among the upper two income quintiles. In addition, more households are now exposed to the market, with stock-ownership rates doubling from under a quarter of households in the 1970s to around half in the 1990s (*Chart 2*). Coupled with evidence from the Dynan and Maki study that stock price changes affect shareholders' spending, rising ownership rates imply

Chart 2

Equity Fund Loads Fall and Stock Ownership Widens



that changes in equity prices increasingly affect the wealth of families whose spending patterns are presumably more sensitive to wealth changes.

The third major criticism of the conventional view of the stock wealth effect on consumption is that empirical estimates of this effect are too imprecise to be useful in predicting or explaining consumer spending. A study by Ludvigson and Steindel (1999), of the Federal Reserve Bank of New York, finds that the estimated long-run impact of stock wealth on consumption varies a great deal when estimated over different sample periods. Because the authors include future income changes in their regressions, their estimates are likely to measure the true wealth effect rather than the tendency of stock prices to pick up expectations of future income.³

One explanation for their finding is that conventional models of consumption fail to control for changes in stock-ownership rates over time. This may alter how much stock wealth affects consumption, consistent with Dynan and Maki's conclusion. Duca (2001a, 2001c) finds that rising stock-ownership rates are attributable to a rise in mutual fund ownership that is linked to a plunge in equity mutual fund commission fees (Chart 2). Because equity funds were the only feasible way for many middle- and lower income families to own stock, the high commission fees (loads) of

earlier decades dissuaded many from investing in stocks. As these fees fell, presumably due to declines in the costs of processing transactions and running mutual funds, the incentive to invest in stocks rose.⁴ As shown in Duca (2001a), the rise in the overall equity-ownership rate in the United States reflects an increase in indirect ownership of stocks through mutual funds.

Unlike the infrequent ownership rate data, the load series I constructed is available on a sufficiently frequent basis to estimate whether rising stock ownership alters the stock wealth effect on consumption. Doing so addresses the concern of Ludvigson and Steindel that the stock wealth effect on consumption cannot be reasonably well estimated in conventional models of long-run consumption. I use similar estimation techniques (including income changes in the regressions), but I control for changing stock-ownership rates by including mutual fund loads. I obtain much more reliable estimates, which imply that the overall sensitivity of spending to stock wealth has risen over time because of rising stock-ownership rates.⁵ Nevertheless, my mutual fund modified model indicates that the stock wealth effect is smaller today than what most conventional models estimate.

To put this in context, consider the estimated impact of changes in stock wealth since the mid-1990s on consump-

The overall sensitivity of spending to stock wealth has risen over time because of rising stock-ownership rates. Nevertheless, my mutual fund modified model indicates that the stock wealth effect is smaller today than what most conventional models estimate.

Table 1

Estimated Stock Wealth Effects on Consumption

	Conventional model estimates	Mutual fund model estimates
Boost: ↑ 200% stock wealth over 1994–99	+5.6	+3.4
Post-correction boost: ↑ 150% over 1994–2001	+4.3	+2.6
Correction effect on consumption	-1.3	-8

SOURCE: Author's calculations.

tion according to these models (*Table 1*). The conventional model, which does not control for changing stock-ownership rates, implies that the 200 percent rise in stock wealth posted between 1994 and 1999 bolstered consumption by roughly 5.6 percent. Despite the stock market decline from early 2000 through early 2001, household stock wealth is still about 150 percent higher than it was in the mid-1990s, so consumption is still being boosted by stock wealth gains since 1994. According to the conventional model, the post-decline boost is 4.3 percent. This implies that the recent market decline has reduced the stock wealth boost to consumption by roughly 1.3 percent.

According to the mutual fund modified model, however, the wealth gains posted between 1994 and 1999 bolstered consumption by roughly 3.4 percent, but the post-correction boost is 2.6 percent. Therefore, this model indicates that the recent decline in equity prices has reduced the stock wealth boost to consumption by 0.8 percent.

Conclusions

Three main conclusions emerge from the above discussion. First, the effects of the stock market on businesses are unclear because the relationship between firms and the stock market has changed a great deal. For example, the limited experience with venture capital makes it difficult to assess how much stock price swings will affect business formation. In addition, because senior managers are held more accountable for their companies' stock prices, it is unclear by how much stock price declines will induce them to cut investment and lay off workers. Second, while criticisms of the stock

wealth effect on consumer spending have some validity, a careful review of the evidence implies that stock wealth does affect consumption. Third, while the conventional stock wealth effect is likely overstated, the underlying impact on consumption and on firms has likely risen over time, due to factors such as the rise of mutual funds and venture capital that have democratized America's capital markets.⁶

—John V. Duca

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Notes

Thanks to Nathan Balke for helpful suggestions and Daniel Wolk for research assistance.

¹ For a broad discussion, see the literature review article by Chirinko (1993). In addition, Oliner, Rudebusch and Sichel (1995) find that other models of investment outperformed a *q*-model.

² For further discussion, see Gompers and Lerner (2001).

³ Ludvigson and Steindel (1999) use the dynamic ordinary least squares (DOLS) regression technique devised by Stock and Watson (1993). In this type of regression, future as well as lagged changes in stock prices and incomes are included, along with current levels. As a result, any correlation of current stock prices with future income changes are implicitly taken into account when estimating the long-run effect of stock wealth.

⁴ It is conceivable that higher ownership rates could cause loads to fall if there are big enough economies of scale in running mutual funds. However, in a related study, I found that long-run movements in loads preceded changes in the percent of household stock assets held in mutual funds and that long-run and short-run movements in this portfolio share did not precede changes in loads. These findings suggest that the downswing in loads induced changes in stock-ownership rates. See Duca (2001d).

⁵ Specifically, estimates of coefficients on income, wealth, and wealth interacted with mutual fund costs vary little across different sample periods. In particular, the negative effect of loads on the sensitivity of consumption to wealth implies that because equity fund loads have fallen a great deal, the stock wealth sensitivity of consumption has risen. This is consistent with the view that broader stock-ownership rates would likely raise the average impact of stock wealth on consumer spending.

⁶ See Duca (2001b).

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Why Is French Unemployment So High?

Despite three years of unprecedented job creation, France's unemployment rate remains nearly twice the U.S. rate. Almost 9 percent of the French labor force is currently looking for a job. France's unemployment rate began to diverge from the United States' roughly 20 years ago and has remained stubbornly high since then (*Chart 1*). Most commentators attribute the situation to characteristics of the European labor market.

Night and Day

French and U.S. labor markets could hardly differ more. U.S. employers and employees can unilaterally terminate their relationship at any time, for almost any reason, in accordance with the common law doctrine of employment at will.¹ In sharp contrast, French law imposes strict limits on the use of fixed-term contracts and stipulates that layoffs must be for a "serious and real cause." Furthermore, workers must receive advance notice of at least one month and a minimum severance payment.² In practice, collective bargaining agreements between firms and trade unions typically stipulate severance in excess of the legal minimum.

Union contracts determine the wages and benefits of nine of every 10 French workers, while fewer than 20 percent of U.S. employees are covered by similar agreements (International Monetary Fund 1999). Although fewer than 10 percent of French employees belong to trade unions, most receive union-negotiated wages.

France is also characterized by high payroll, income and sales tax rates. Nickell and Layard (1999) estimate that in 1992, French firms faced a ratio of labor costs to wages of almost 40 percent, twice the ratio U.S. firms faced. After income and sales taxes, the average French worker was left with only a third of his or her gross wage.

Unemployed French workers are entitled to comparatively generous benefits. The Organization for Economic Coopera-

tion and Development (OECD) estimates that in 1994, initial benefits represented an average of 70 percent of previously earned income in France, compared with 60 percent in the United States (OECD 1997). While benefits usually expire after six months in the United States, they are available for up to four and a half years in France.

Furthermore, when unemployment benefits expire, unemployed French workers are entitled to a minimum income of about a third of the minimum wage. These minimum-income recipients also qualify for various subsidies, most notably a housing subsidy that may cover much of a person's rent.

Causes and Cures

The solution seems clear: reform French labor market institutions. This is essentially the message of an OECD study designed to find cures for Europe's chronic unemployment (OECD 1994). The study recommends, among other things, that France reduce the generosity of unemployment benefits, tighten eligibility for the benefits and liberalize its

job protection legislation. The International Monetary Fund has reached similar conclusions (IMF 1999).

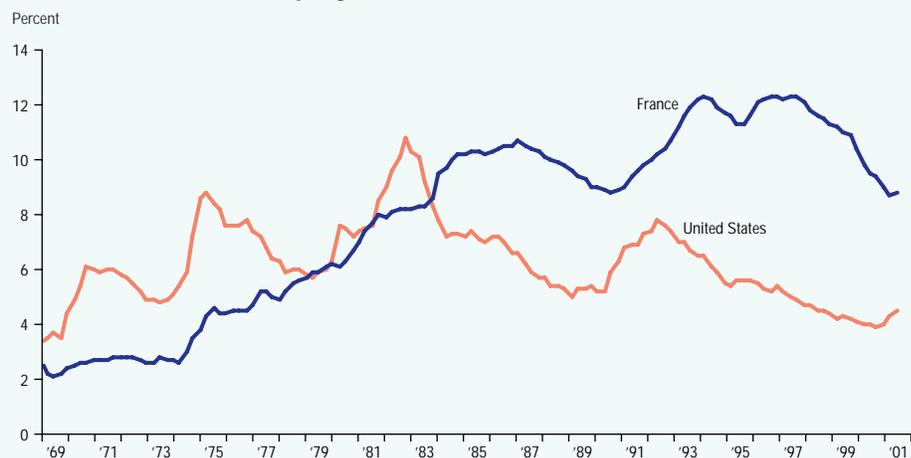
Although such advice is common, there is surprisingly little empirical evidence that labor market rigidities account for much of the cross-country variation in unemployment. France's unemployment rate was below the U.S. rate for most of the 1970s, even though most institutional features of its labor market were already in place. Portugal has strict employee protection laws but boasts unemployment of only 4 percent.³

Economies with very different institutions may, in fact, have similar long-run unemployment levels. Firing costs make firms more reluctant to hire, but they also tend to increase the duration of employment contracts.⁴ Individuals remain unemployed longer, but they don't face unemployment as often.

Economists argue, nevertheless, that labor market rigidities can have a lasting impact on unemployment by magnifying the effect of adverse shocks. While economies with flexible labor markets are able to adjust quickly, those with rigid

Chart 1

U.S. and French Unemployment Rates



NOTE: All data are quarterly.

SOURCES: Institut national de la statistique et des études économiques; Bureau of Labor Statistics.

labor markets require a long time to revert to their long-run unemployment level (Ljungqvist and Sargent 1998; Blanchard and Landier 2000). The leading explanation for France's high unemployment holds that like many of its neighbors, the country is still recovering from a series of adverse shocks that included two oil shocks and a sharp productivity slowdown in the 1980s.

The impact of those shocks was compounded by the fact that the wage bargaining process is highly centralized. Nonunion workers and the unemployed are not directly involved in the wage formation process, which limits the influence of rising unemployment on wages.

Meanwhile, many individuals are caught in "inactivity traps." In 1998, a third of those who decided to forgo France's minimum income by taking a job saw little or no increase in their overall income (Lhommeau and Rioux 2000). It is, in fact, remarkable that most unemployed workers continue looking for jobs despite many financial disincentives.

What the French Want

The French government has adopted various measures to encourage the unemployed to seek work. Minimum-income recipients who accept a job now keep part of their benefits for one year. The government also cut payroll taxes on low salaries to increase the net pay of workers at or near the minimum wage.

In a recent report commissioned by Prime Minister Lionel Jospin, Jean Pisani-Ferry (2000) calculates that those measures won't significantly impact long-term unemployment. The French economist goes on to suggest the adoption of a tax credit that would eliminate most financial disincentives to work. He also recommends that requirements making job search efforts a condition of unemployment benefits be reinforced.

Pisani-Ferry points out, however, that "the French, much like most Europeans, do not wish to adopt the rules that govern the U.S. labor market, which probably means that they are willing to accept a higher equilibrium unemployment level than what it could be." Only two of the OECD's 1994 recommendations to the French government were implemented at what was categorized as a "sufficient" level because many of them are politi-

cally infeasible (OECD 1998). A limited attempt at reform by France's last conservative government in 1995 triggered massive demonstrations and strikes.

Recent reforms, if anything, should make labor markets yet more rigid. In response to a wave of mass layoffs, in June the government passed a "social modernization" law that toughens layoff standards. Employers must now demonstrate that they have considered all other options before resorting to layoffs. When the finance minister expressed concern that this might hinder French firms' ability to compete, the communist party accused him of being "sensitive to liberal ideas" (Pisani-Ferry 2000).

These developments underscore the importance of assessing the political viability of reforms. As a first step in this direction, Boeri, Börsch-Supan and Tabellini (2000) asked a sample of 4,000 European households what proportion of their income they'd be willing to pay for various levels of unemployment benefits. Their study found that a majority of the French sample were willing to pay for the current level of benefits. They also found that a majority of the French respondents would approve a reform package extending benefits to more people but reducing the duration of benefits. Such a reform would have a direct, beneficial impact on long-term unemployment.

While these findings should be interpreted with caution, they suggest there is room in France for reforms that would alleviate inactivity traps. In the words of Pisani-Ferry, the fact that the French like many aspects of their welfare system "does not imply that a 9 or 10 percent unemployment rate is socially optimal."

—Erwan Quintin

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Notes

My thanks to Julien Bonnel for research assistance.

¹ Miles (2000) discusses common law exceptions to the employment at will doctrine. Layoffs of 50 or more employees in a given establishment (mass layoffs) are governed by the Worker Adjustment and Retraining Notification Act, which requires employers to give workers 60 days' notice.

² French workers are entitled to financial damages if the labor affairs authority decides the separation is without serious cause. Two months' notice of a layoff is required if the worker's tenure exceeds two years.

³ While Di Tella and MacCulloch (1999) find, based on surveys of businesspeople, that labor market flexibility leads to lower unemployment rates, a study of OECD countries by Nickell and Layard (1999) finds "no evidence that stricter labor standards or employment protection lead to higher rates of unemployment." They conclude that "time spent worrying about strict labor market regulation, employment protection and minimum wages is probably time largely wasted."

⁴ See, for example, Cohen, Lefranc and Saint-Paul (1997).

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The Texas economy slowed significantly during the first seven months of 2001. Although acute problems remain in high tech and manufacturing, softening has spread to other economic sectors. After posting strong gains for the past two years, energy now appears to be leveling off. TCPU (transportation, communications and public utilities) and construction, especially homebuilding, continue to be economic bright spots for Texas. The unemployment rate has increased for six straight months and currently stands at 4.7 percent.

During the first half of 2001, oil and gas exploration served as a continuing and important source of economic strength and stability for the Eleventh District. However, energy may not be immune to the slowing trend. In recent weeks the Texas rig count has flattened out to just over 500 rigs, suggesting that domestic drilling may have peaked for now. Rising inventories have driven the spot price of natural gas down

from \$4 per thousand cubic feet to around \$2.40.

Technology continues as the epicenter of weakness, with North Dallas and Austin the hardest hit. Negative trends in technology have spilled over to the commercial real estate sector; sublease space in North Dallas and Austin has nearly doubled. Meanwhile, the Dallas area is reaching near record levels of new office space under construction.

Before the tragic events of September 11, the near-term outlook for the Texas economy was for weak growth. The Texas Leading Index increased from May to July, suggesting gains in employment over the next three to six months. Nonetheless, Texas' economic strength will depend on the health of the U.S. economy. The recent events have the potential to dampen spending and slow national economic growth, but the long-term prospects for the U.S. economy remain favorable.

—Charis L. Ward

Texas Job Growth Continues to Slow

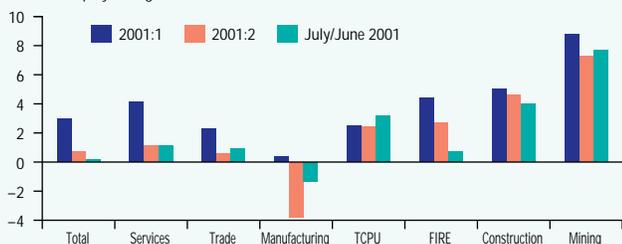
Percent, total nonfarm*



*Quarter-over-quarter, seasonally adjusted, annualized rate.

Texas Employment Slow Across the Board

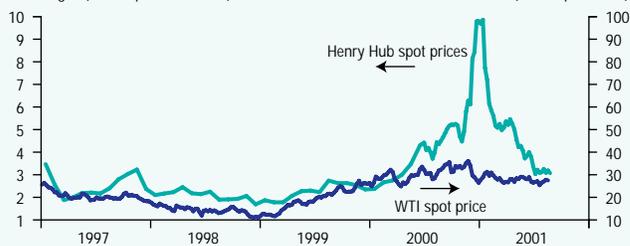
Percent, employment growth*



*Quarter-over-quarter, seasonally adjusted, annualized rate.

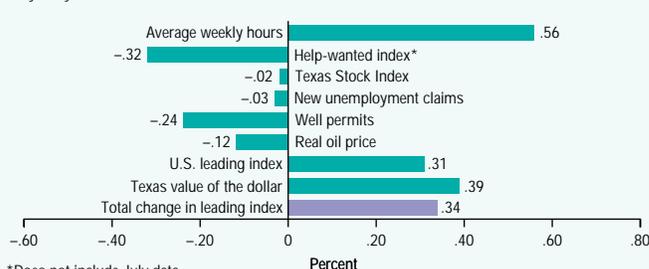
Texas Energy

Natural gas (dollars per million Btu)



Net Contributions of Components to Change in Leading Index

May–July 2001



*Does not include July data.

Regional Economic Indicators

TEXAS EMPLOYMENT*

Texas Leading Index	TIPI† total	TEXAS EMPLOYMENT*				Private service-producing	TOTAL NONFARM EMPLOYMENT*		
		Mining	Construction	Manufacturing	Government		Texas	Louisiana	New Mexico
7/01	—	163.2	580.0	1,070.1	1,578.6	6,206.5	9,598.4	1,935.4	757.0
6/01	119.2	162.2	578.1	1,071.3	1,585.9	6,200.2	9,597.7	1,938.4	754.7
5/01	120.0	161.2	574.9	1,074.3	1,582.9	6,193.7	9,587.0	1,941.6	754.2
4/01	119.0	131.2	160.7	572.4	1,078.1	6,185.2	9,579.7	1,945.8	754.2
3/01	120.2	131.1	158.6	571.1	1,081.9	6,189.5	9,581.8	1,948.0	753.6
2/01	121.4	131.7	156.5	567.8	1,083.3	6,170.8	9,557.5	1,950.5	751.0
1/01	124.0	131.2	156.1	566.6	1,083.0	6,155.1	9,536.2	1,946.1	750.7
12/00	122.8	131.2	155.3	564.2	1,080.8	6,139.8	9,510.5	1,934.8	748.9
11/00	123.2	131.1	153.6	562.6	1,082.2	6,129.6	9,496.4	1,931.1	748.9
10/00	124.8	131.1	152.6	559.0	1,083.2	6,111.3	9,470.9	1,931.0	748.2
9/00	125.9	131.3	151.3	565.1	1,085.4	6,111.3	9,479.9	1,928.6	747.7
8/00	126.3	131.4	150.8	563.4	1,084.2	6,099.8	9,461.2	1,927.2	746.2

* In thousands. † Texas Industrial Production Index.

For more information on employment data, see "Reassessing Texas Employment Growth" (*Southwest Economy*, July/August 1993). For TIPI, see "The Texas Industrial Production Index" (*Dallas Fed Economic Review*, November 1989). For the Texas Leading Index and its components, see "The Texas Index of Leading Indicators: A Revision and Further Evaluation" (*Dallas Fed Economic Review*, July 1990). Online economic data and articles are available on the Dallas Fed's Internet web site, www.dallasfed.org.

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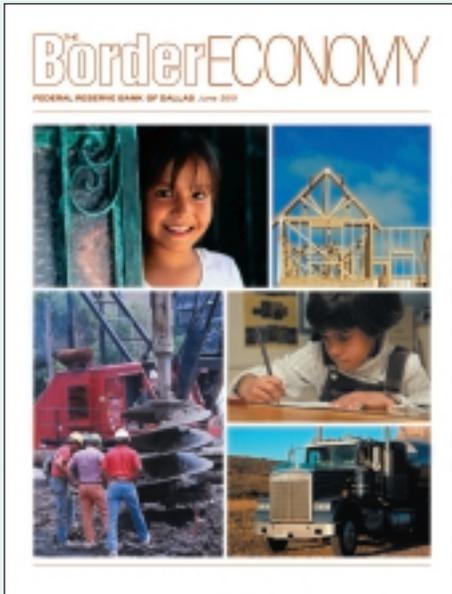
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