WHITE PAPER

Economic Factors Affecting Future Travel Behavior

Summary

Economic factors – including growth in labor force participation and employment, steadily rising personal incomes, and declining prices for motor vehicles and fuel -- have been a major source of continuing growth in U.S. personal travel demand throughout the postwar period. At the same time, rapid expansion of the domestic economy and the importance of international trade, major investments in the U.S. highway system, and deregulation of U.S. freight transportation industries have fueled geographic dispersion and regional specialization of industry, as well as changes in business logistics practices. In turn, these developments have contributed to rapidly growing demand for freight transportation (particularly trucking and, more recently, air freight), both within U.S. metropolitan areas and among regions of the nation.

Over the next few decades, however, many of these factors are projected to change more slowly than in recent history, or otherwise evolve in ways that are likely to provide less impetus to growth in demand for personal travel and freight movement. This paper explores likely future developments in economic factors that have contributed to rapid postwar growth in U.S. travel demand, including growth in the U.S. labor force and employment, rising personal incomes, fluctuations in energy prices, and changes in the nature of work, commerce, and commuting. Briefly, it concludes that:

- Growth in the U.S. labor force and total employment is likely to slow to about one-third of their postwar rates (which averaged 1.6% annually) over the next few decades.

- By the middle of the 21st century, nearly one in five U.S. workers will be 55 or more years old, women will represent almost exactly half the workforce, and Blacks, Asians, and Hispanics will comprise nearly 30% of all employees.

- Increases in job stability and security will continue to narrow historical differences in employment opportunity among different categories of workers, including men and women, workers of different ages, and white versus minority workers.

- Most economic analysts project continued long-term growth in the overall level of U.S. economic activity and in real (i.e., inflation-adjusted) incomes of U.S. workers and households, in response to continuing growth in employment and worker productivity.

- The consensus forecast of future gasoline prices is for a gradual decline from their current high levels, followed by moderate escalation in prices (less than 1% annually) after approximately 2010, although a minority of energy market analysts expects fuel prices to remain near their current high levels.

- Recent profound changes in the nature of the workplace and work itself -- including flexible working hours, part-time employment, self-employment, working at home, and mobile or variable work locations -- are expected to continue over the foreseeable future, although perhaps at a slower pace than during recent decades.

Labor Force Participation and Employment

Rapid increases in both the U.S. population and the fraction of adults who participate in the labor force – that is, are employed or actively seeking work – cause the nation's labor force to more than double between 1950 and 2000. During that same period, profound changes in the composition of the population also caused the U.S. labor force to become significantly older, more diversified, and increasingly made up of women. Although overall growth and changes in the composition of the nation's population are expected to continue throughout the foreseeable future, their pace is expected to slow considerably from recent decades.

At the aggregate level, slowing growth and aging of the U.S. population are expected to combine with declining labor force participation rates (the fraction of the population that is employed or seeking work) to reduce growth in the labor force to only about one-third of its average rate throughout the postwar period. Thus after growing by 1.6% per year from 1950 through 2000 (and more than doubling over that entire period), the U.S. labor force is expected to grow only about 0.6% annually from 2000 through 2050, resulting in an aggregate increase of only about one-third over the next five decades. While this pronounced slowdown in the growth of the labor force is expected to be partly offset by a gradual decline in the fraction of the labor force that is unemployed at any time, total employment in the U.S. economy is nevertheless expected to grow much less rapidly in the coming decades than it has throughout recent decades.

Slowing in the aggregate growth of the workforce, however, is likely to be accompanied by profound changes in its composition. The number of workers aged 55 or more is expected to nearly double, so that by 2050 these older employees will represent nearly one in five of all U.S. workers. And while growth in the number of women in the U.S. workforce is expected to slow from its rapid pace in the 1970-90 period, women are expected to comprise almost half (48%) of all workers throughout the next several decades. The future U.S. workforce is also expected to mirror the increasing racial and ethnic diversity of the nation's population, so that by the middle of the 21st century Blacks, Asians, and workers of Hispanic origin will comprise nearly 30% of all U.S. workers.

Despite widespread popular perception to the contrary, job *stability* (the average duration that a worker holds the same job) in the U.S. economy has remained essentially unchanged in recent decades, while job *security* -- the likelihood that an employee will leave a job involuntarily, rather than to take another job or to retire from the workforce -- has increased significantly, particularly in the past decade. In addition, the fraction of employees leaving their jobs who move directly to another job rather than experiencing some period of unemployment before finding a new job has increased sharply among most groups of workers. Increases in job security have been particularly large among women and other groups (including younger workers and minorities) who have entered the workforce in large numbers in recent decades. Workers in these groups are now also less likely to leave the workforce entirely because of their inability to

maintain stable employment, family considerations, early retirement, or other reasons once having begun a working career.

These developments have generally tended to narrow historical differences among workers in their job stability, job security, and the likelihood that they will remain continuously employed once having entered the workforce. Improvements in job security and increases in the probability that workers will move directly to another job have narrowed historical differences among male workers of different ages, while these changes have sharply narrowed once-large differences among women in job stability and security by education and work experience.

Taken together, these developments suggest that the American economy may have experienced a permanent decline in the "natural" rate of unemployment, or the amount of unemployment that results from normal turnover of employees among jobs and firms or industries and from previously employed workers leaving the labor force completely. They also suggest that employment opportunity has become much more equalized among different categories of workers, including men and women, workers of different ages, and white versus minority workers.

Finally, the "economic dependency ratio" between the nation's population and labor force -- the number of persons who are neither employed nor seeking work for every person who does participate in the labor force -- measures the economic burden on the incomes earned by employed workers. After declining rapidly throughout the postwar period -- from about 1.4 in 1950 to its current historical low of about 0.9 -- this ratio is projected to increase gradually over the next several decades, reaching about 1.1 by 2050. At the same time, far more of the nation's economically dependent population is expected to be made up of older people, and far less of it of children or persons of working age, during the next few decades than at any time in U.S. history.

One important implication of these developments is that the traditional child-raising responsibilities of the working population will be increasingly accompanied (or even supplanted) by the responsibility of caring for older, non-working relatives. Another is that the capability of the U.S. workforce to expand rapidly in response to robust economic growth by drawing upon the population that is of normal working age but not employed will be limited, and that immigration will necessarily be an important mechanism for sustaining potential surges in economic growth.

Growth in Economic Activity and Personal Income

Most economic analysts and forecasters project continued long-term growth in the overall level of U.S. economic activity and in real (i.e., inflation-adjusted) incomes of U.S. workers and households. However, the recent series of record-setting U.S. trade deficits has begun to raise concerns among some analysts about the potential for a catastrophic decline in the value of the dollar, and an accompanying sharp reduction in U.S. households' standard of living. In addition, there is some concern that recent growth in the average income of U.S. households has been accompanied by a widening dispersion of income levels among the population, so that lower-

income households may not have experienced gains in income parallel to those among middle-income households.

In addition to growth in the fraction of the nation's population that participates in the labor force and in the fraction of the labor force that is employed, two other factors affect the potential for the U.S. economy to grow more rapidly than the nation's population, and thus to raise the average standard of living by generating increases in real income per capita. These are the number of hours worked by each employed person and the productivity of workers, or real economic output per hour worked. Average weekly hours worked per employee in the U.S. economy has declined gradually throughout most of the postwar period, in part as a result of its continuing transition from a farming and manufacturing-based to a service-oriented economy, and in part because of rising living standards. Over the first few decades of the 21st century, however, working hours are expected to remain approximately constant or perhaps even to rise slightly, but not sufficiently to contribute significantly to growth in personal income.

The productivity of American workers has grown steadily throughout the postwar period, and surged impressively during the late 1990s after lagging slightly from the mid-1970s to the mid-1990s. This sustained productivity growth is generally attributed to increasing education and training of the U.S. workforce, together with technological advances and continuing increases in the amount of capital invested per worker. Growth in labor productivity is generally expected to remain robust through the remainder of the current decade – averaging about 2.5% annually – but to slow to approximately 2% per year thereafter. This gradual slowdown in productivity growth is expected to result in turn from slowing in the trends that have accounted for postwar increases in worker productivity, primarily increases in education attainment and growth in the value of capital invested per worker.

As a consequence, total business and other economic activity in the U.S. is expected to continue to grow steadily throughout the foreseeable future, roughly equaling the 2.5% average annual rate at which the economy has expanded throughout the postwar period. At the same time, the average real incomes of individuals and households are also expected to continue to rise at approximately this same rate over the next two to three decades. Over this period, most analysts expect returns on investments to account for a gradually increasing share of personal and household income, while the share contributed by job earnings (wages and salaries) is expected to decline slightly.

Throughout most of the postwar period, increases in the average incomes of individuals and households in the U.S. was accompanied by roughly comparable growth in the incomes of those with below- and above-average incomes, so that the distribution of income remained fairly stable. This pattern was interrupted from approximately the mid-1970s through the early 1990s – a time during which upper-income households saw their income levels grow particularly rapidly, while those of the lowest-income U.S. households grew unusually slowly. The resulting widening of the household income distribution has generally been attributed to increasing compensation for highly educated and skilled labor and simultaneous erosion in wages earned by less educated or lower-skilled workers, together with the declining role of industries such as manufacturing that traditionally afforded high-wage opportunities for lower-skilled workers.

While the more uniform growth in household incomes that prevailed before the mid-1970s appears to have resumed during the 1990s, there appears to be little consensus about the likely future trend in the distribution of personal and household incomes in the U.S. On one hand, education and training levels of the U.S. workforce continue to improve gradually, which should tend to increase job earnings across a broad spectrum of the workforce, while an increasing fraction of families has more than one employed member. At the same time, however, compensation for low-skilled occupations is likely to continue to erode in response to international competition and immigration, declines in the real value of the minimum wage, and increasing reliance on part-time and temporary workers. In addition, the increasing prevalence of single-parent households with children and of non-family households, rising divorce rates, and related developments in household living arrangements are likely to exert downward pressure on the earning power of the lowest-income households.

Energy and Fuel Prices

The near-term outlook for world petroleum prices remains highly uncertain, primarily because of the recent success of OPEC in restraining world petroleum supplies, the uncertain outlook for Iraq's role as a major supplier, and the uncertain pace of near-term economic growth and development in Asia. The rapid escalation in world petroleum prices during 2003 and 2004 caused by these circumstances, together with recent questions about the reliability of widely relied-upon estimates of the world's proven petroleum reserves, has raised concerns about the potential for continued long-term escalation in prices for energy resources and transportation fuels.

Despite these concerns, most analysts of world energy markets agree that the availability of energy resources is unlikely to become a key constraint on worldwide demand during the first half of the 21st century. While they recognize that potential political and economic developments -- as well as environmental concerns -- are more important potential influences on the supply of and demand for energy resources, the majority of energy market analysts still expect potential investments in new energy production technology and infrastructure in non-OPEC nations, as well as the availability of alternative forms of energy supply -- to restrain growth in future world oil prices.

As a consequence, the consensus forecast of future world petroleum prices – the most important determinant of the price of refined gasoline – is for a gradual decline from their current high levels, followed by only moderate escalation in prices (less than 1% annually) after approximately 2010. However, a few energy market analysts view this assessment as overly optimistic, primarily because they believe that widely cited figures significantly overestimate world oil reserves, and expect crude petroleum prices to rise much more rapidly over the coming decades.

Other major supply-related factors that also cloud the long-term future outlook for world oil prices are the likely supply behavior of OPEC member nations outside the Middle East -- principally in Africa and South America, many of which are beset by political instability as well -- and the likely scale and pace of investments in oil production capacity in non-OPEC nations, mainly the former Soviet Union. On the demand side, uncertainty about the pace of economic

recovery throughout Asia and the former Soviet Union, the longer-term prospects for continued economic growth of India, and the consequences of economic and political reform in China also cloud the long-term outlook for world oil prices.

Finally, there is also some uncertainty about future fuel taxes in the U.S., primarily at the federal level. If U.S. policy ultimately changes to regard the potential for global climate change as a serious environmental and economic threat, one possible instrument to reduce carbon emissions would be major increases in federal taxation of fossil-based energy resources or their carbon content. The bulk of any such tax increases would presumably be passed through to users of gasoline and other petroleum-based transportation fuels. In the short term, this could result in sharply higher prices for these fuels, although higher prices would also be expected to lead to widespread purchases of more fuel-efficient vehicles over the longer term, thus dampening some of the effect of higher fuel taxes and retail prices.

The Changing Nature of Work and the Workplace

Postwar changes in the composition of U.S. economic activity and in the demographic makeup of the nation's workforce have been accompanied by equally profound changes in the nature of jobs, the workplace, and work itself. While the gradual shift from a manufacturing-based economy to one dominated by service industries has been extensively documented, subtler – but perhaps equally far-reaching from the standpoint of commuting and other travel behavior – changes have escaped similar scrutiny. These include greater flexibility in working hours, the rapidly growing prevalence of part-time work, growth in self-employment, the increasing prevalence of working at home, and the growing substitution of mobile or variable work locations for the traditional fixed workplace.

Most of these developments are a product of the changing structure of U.S. economic production and the increasing diversification of its workforce, together with advances in information processing and electronic communications technologies that permit highly integrated business activities to proceed without requiring close physical proximity or face-to-face contact among employees. Because these underlying trends are generally expected to continue into the future, the accompanying changes in the nature of jobs and the workplace can also be expected to continue, although the pace at which particular developments are likely to continue remains somewhat uncertain.

An increasing fraction of U.S. workers now enjoys some flexibility in working hours. Nearly 30% of those currently employed full-time have work schedules that allow them to vary the time they begin or end work, and about one-third of these have formal employer-sponsored flextime programs. This figure has risen sharply in recent years; during 1985, only about 12% of American workers enjoyed flexible schedules, and most labor market analysts expect continued – although slowing -- growth in jobs offering flexible schedules. The fraction of workers assigned to non-daytime and other unconventional work shifts also declined slightly over this period. To some extent, the increasing prevalence of flexible work schedules and the continued gradual disappearance of unconventional work shifts reflects the continuing shift toward a service-oriented economy, since the fraction of workers with flexible schedules tends to be

considerably higher in service industries and in government agencies than in goods-producing industries.

The prevalence of part-time work schedules has also grown in recent years, and is likely to continue doing so over the future. Nearly one-quarter of U.S. workers now work on a part-time schedule (less than 35 hours per week), although about 15% of these report doing so because of slack business conditions or because they were able to find only part-time or seasonal work. While comparable historical data are difficult to obtain, it appears that the fraction of workers who are on part-time shifts for voluntary reasons (rather than because of the inability to find full-time work) has risen significantly over the past two to three decades, presumably in response to changes in the composition of U.S. economic activity and technological innovations that have improved worker productivity and reduced the need for face-to-face contact among workers. The typical part-time worker averages between 20 and 25 hours per week, slightly more than half the weekly number of hours reported by full-time employees in the U.S. workforce.

Finally, other workplace characteristics with potentially important implications for commuting and other travel behavior also appear to be changing rapidly. These include the increasing prevalence of working at home, and the growing substitution of mobile or variable work locations for the traditional fixed workplace. While only about 3% of American workers now use their homes as their primary or exclusive workplaces, another 3-5% of those with regular office workplaces report working from home one or more days per week as part of a formal arrangement with their employers. Another few percent of employees appear to work at locations that vary from day to day, either according to a regular schedule or with no recurring pattern. While historical data are difficult to obtain, all of these figures -- particularly the percentages of employees working partly at home and those without fixed workplace locations -- appear to have risen sharply in the past two decades.

These developments appear to be the consequences of several major forces in the U.S. economy, including rapid growth in self-employment and other alternative working arrangements (such as independent contracting and on-call employment), the continuing transition from a manufacturing to a service-based economy, and the rapid spread of technological innovations that have enabled reliable communication among workers and with customers or suppliers without requiring face-to-face contact. As a consequence, the number of employees working at home or at frequently changing workplace locations appears likely to continue to grow over the foreseeable future, although perhaps at a slower pace than during the past decade.

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