

# RECORD, Volume 26, No. 1\*

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Las Vegas Spring Meeting  
May 22–24, 2000

## Session 67OF

### Economic and Demographic Trends in Disability Insurance

**Track:** Health Disability Income

**Moderator:** MICHAEL G. TEMPLE

**Panelist:** RICHARD CARLSON LEAVITT  
MICHAEL G. TEMPLE

*Summary: Experience on group and individual disability insurance has been historically sensitive to economic and demographic trends. In recent years, for example, the restructuring of the health care industry has caused major upheaval for many disability insurers. This session examines current and projected economic and demographic trends in search of the next major issues that may affect the disability insurance market.*

*The panelists in this session speak in general terms about a variety of trends, such as the stock market, unemployment rates, interest rates, and the aging of the baby boom generation. They then turn specifically to the disability insurance market and speculate on how these trends may affect financial results.*

**Mr. Michael G. Temple:** I will be the moderator for this session. I will be joined by Rick Leavitt of the Smith Group. The format of the session is an open forum. Our approach will be to present our thoughts on key trends and their impact. Our goal is to have an exchange of ideas; I hope we will all learn a little something from each other.

The way we plan to approach our topic is Rick is going to cover economic trends. I'll discuss labor and demographic trends, and that should leave us with about half the session for audience participation. I'm going to turn it over to Rick.

**Mr. Richard Carlson Leavitt:** The agenda says economic trends, but I'm going to talk in a more general sense about external influences on disability; economic trends are only a part of this picture.

I think it's interesting that I'm going to talk about external trends in disability while we're here in Las Vegas. I've had a lot of lengthy discussions with an actuarial colleague of mine about external influences on gambling odds or on gaming performance. Admittedly, the connection between disability and gambling is

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remote at best, but I think that there's an interesting point to be made by contrasting the two.

When it comes to gambling, I'm a believer that it is essentially random. Underlying each of the games, there is some sort of random element. Whether its truly random, a roll of the dice, or simulated random on the electronic gaming machines, it's basically that random element that determines the outcome of the game. You do get a sense of some trends in your gambling performance. If any of you have gambled, you get a sense of whether you are having a hot streak or a cold streak. However, that sense is really due to your mind's desire to impose a pattern on the underlying randomness.

I do think that there is a possibility that there might be external trends in gambling performance in the sense□and this is purely speculation□that the games are rigged. However, you would then expect some correlation between your performance and profit goals for the casino or something like that. Because we understand the underlying mechanism, I feel confident that if we did a study on it, we would be able to identify and isolate those external effects.

That being said, I want to contrast that with how we think about disability. We often think about disability in a very similar way. We even talk about Monte Carlo simulations of disability outcome, which is where we basically carry this idea that each individual insured has a little roulette wheel inside of them that has a one out of a 250 chance of coming up red. Then you have a disabled claim.

That's certainly how actuaries view this type of event. There's a long history for that, dating back to a landmark study in the early part of this century where a study was conducted on Prussian soldiers during World War I. The study was on the likelihood of soldiers getting kicked by a horse. What they found was that it appeared to be essentially random. Assuming some random probability of getting kicked by a horse, you can use a binomial distribution of the event. Then you could accurately predict the actual number of people that would get kicked during any period of time. In addition, if you had different segments of soldiers, you could also predict the distribution of kicks or the variance in the number of people that got kicked from group to group.

A very important realization in actuarial science is that you could model aggregate behavior and make accurate predictions about aggregate behavior with a very simple model. That can be done without any details of the circumstances surrounding each individual kick. This is sort of the model that we, as actuaries, carry into all of these different insurance products.

Now I think that that is a limited model in terms of disability. I think that disability functions somewhat differently than that. There certainly is a component of disability that has this sort of essential randomness underlying it, and this is the chance that any of us could be struck down by a disabling condition, unpredictably and unexpectedly. This is the horse kick component of disability, but I would argue that the majority of disability results from long lasting, chronic conditions that many of us carry through life. At some point, for some reason, there's a decision that's made to stop trying to work, and to go out on claim. It's the nature of that

disability decision that leads to the fact that we have profound and important influence from external factors on disability experience.

What are the pieces of information that I would really want to know if I wanted to accurately predict disability claim costs? I came up with eight spheres of influence on LTD: health, job satisfaction, job security, lifestyle, financial security, job functions, work ethic, work/home balance. These are by no means comprehensive and inclusive of everything that can affect the disability decision, but it's my attempt to kind of come up with the major regions.

The health of the individual insured can certainly be an influence. Job satisfaction and job security play a very important roll in deciding whether it is worth putting up with pain to work, or whether you, in fact, would be better off at home receiving a disability check. Lifestyle was an issue that was covered a little bit in one of the talks about underwriting disability yesterday. This has to do with whether you're a risk-taking person. Regarding financial security, can you afford to go out on claim? Can you afford to stay out on claim? Job function is relevant in the sense that some duties may be easier than others to perform with a disabling condition. Work ethic, and work/home balance are softer influences, but they all play into this decision.

The fact of the matter is they all play into this decision in a complicated and convoluted way because it happens inside the human head. This human factor is what really makes this a complicated product. We are making decisions about going out on claim based on a lot of things that affect our lives, and, as actuaries, we are essentially trying to step back and kind of track that a little bit through some sort of economic or societal trend. It is complicated.

I see the disability decision played out in my house relatively regularly. My son will come downstairs and say "My throat is sore, or my head hurts. I think I need to stay home from school." Then my daughter will say, "Dad, my throat is sore and my head hurts. Can you give me some Tylenol so I can go to school?" What are the rating factors for that? Is it birth order? Is it gender? Is it age? Is it how well their teacher likes them? Is it how well they are doing in school? Does it have to do with what's going on in the playground? Is it some feature of their individual personalities?

The answer is that it's all those things. And it's all those things tied up in some sort of a complicated way. When I think about that particular issue, and I think about disability, I realize how far we are from what we'd really want to know to be able to truly predict claim cost.

Now, contrast all of that with what we look at as an actuary. I apologize. I mostly have experience in Group LTD, so I am really more geared towards LTD than individual disability.

We're trying to estimate incidence, claim size, duration, and investment return. If we could accurately predict all of those things, then we would get our claim cost right. There are many factors that we use to make a prediction. For incidence we use age, gender, occupation, elimination period, diagnosis, industry, and region. For claim size, we use salary, benefit percentage, Social Security, and state plans.

For duration, we use age, gender, plan design, and diagnosis. Finally, we use the discount rate to come up with the investment return.

We start thinking that we must control the situation. We think we must have our plan characteristics, our demographics, our predicted incident rate, and our claims costs, and so forth. Now I really want to contrast these variables with what I discussed earlier; what I thought I would need to know to determine the disability costs, there are a lot of gaps. They are really not very well connected.

Here is how we estimate health. We do it by age, gender and occupation. Right? It would be nice to do medical underwriting, but in group, we don't do that. So, we're really not capturing very much about health. We are using age and gender as a proxy for health, and as you all know, this is a long way from actually knowing about the health of the individual insured. How do we capture job satisfaction? Industry and occupation has a very loose connection. You know certain people in certain jobs tend to be happy with their jobs, I guess, but it's not a direct connection.

All of these examples show a very similar thing, which is the information we really want to know to do the rating is not what we are really capturing when we do the rating. As for job security we need some sort of measure of economic viability of the industry or the occupation. Or we need to know what other jobs are available. We can roughly capture that in industry and occupation factors, which only loosely get that effect.

Anyway, if we go through the other influences, we would see a similar kind of thing. We are approximately capturing those effects with these rating variables, but we're not getting the true picture. All of this is a long-winded explanation for the simple fact that I think that we do need external information to bring to bear on disability rating decisions.

So there are really two points out of all that. One is obvious. I think we need external information. Since this is the information that's available when we rate a case, this is the information that's necessary to rate a case. In fact, this is not true. We really could use a much wider range of information. Of course, what we can get is limited. It is not as though we are rating based upon on these limited variables because we're shortsighted. We're rating on them because that's what's available to us from the broker or from the sales representative when we rate a case. So what I'm doing is making a plea for the fact that you need to kind of step back and look at other information that might come to bear on disability.

The second point is that these influences, economic and otherwise, affect disability in a very complicated way because they all flow through the human brain. We really are talking about individual decisions. We are talking about how individuals process information and make those decisions. What that means is that, in a statistical sense, these influences are nonlinear and correlated with each other. It is extremely difficult and perhaps impossible to separate and isolate individual causes and effects. I think that is one of the reasons that we have not used much external information in LTD.

As far as I know, no one has done the definitive study that shows the effect of each of these economic indicators or trends. Furthermore, because of the influences flowing through the human brain, it'd be extremely difficult to actually do that study. So we really have to think about this in a more holistic way, focusing on the different influences. We're thinking about them as pressure points on LTD. The economy is going good, so that means LTD or disability claim costs are going to be lower. If the economy is going bad, it's going to be worse. We are really talking about qualitative influences, and how these influences interact with each other, and in what direction we might expect the pressure to be.

I think that will be good to discuss because I don't think there are any clear-cut answers on a lot of these. We all have our theories about how it works, and I think that it is good for those of us in the industry to talk it through.

I want to make one last point before I run through the data. You know this is all sort of a pre-cursor. I'm actually going to show you some of the economic data that we've captured, but I want to make a contrast between the two ways of looking at things. An underwriter might look at an individual case, and there might be a lot of information that pertains to that individual case, which is very important in the context of doing the rating. The actuary tends to look at more aggregate information that spreads across the industry, and is really making decisions about rate level and rate structure.

In the information that I'm going to provide subsequent to this, I'm really thinking of it more from the actuarial point of view, and not based on what specific information you might gather about a specific case that will help you to rate that case. I think that falls into the context of what I call risk underwriting. It's a very important topic, but it's a topic for a session in and of itself. In other words, what can you find out about an individual case that will help you to accurately rate that individual case. I'm going to talk in a more general sense. These are the economic trends. These are how they might affect disability.

Sources of information. This is the information age, and the Internet is a great source for much of this information. It would have been much harder to do this kind of thing 10 or 15 years ago when you had to independently find all these separate pieces of information. But you can go online, and you can pull a lot of this information quickly and easily.

The U.S. Government is a great source of information, particularly the Bureau of Labor Statistics and the U.S. Census. There's a lot of information on both of those sites, and there are many different ways of slicing the data. It's a little bit limited, but it has the advantage that the government has been producing these statistics for a long time in a uniform way. So if you really want to get, for example, unemployment or employee growth or statistics like that, you can get it in exactly the same format, by month, dating back 12 years. Other categories include: by industry, by industry category, by region, or by state. There are a lot of different ways of slicing the information, all in a uniform way. So those are limited sites, but they are great sites for the kind of quantitative information that actuaries like to take to put into their models.

There is a lot of softer information, and I've given some examples here. Another source is consumer surveys and industry publications. Consumer surveys are usually conducted by polling companies that get hired to look into a certain question. Some of these sites, like the Roper Starch site, has a great deal of information. Approximately 150 different surveys have been done. It's fascinating reading. Whether you can take out specific information and use it in your LTD rating, or in your disability rating is a little less clear. It falls more under the context of the holistic approach. Where is LTD heading? Where is disability heading? It's useful to look at this type of information.

Other government agencies such as the Social Security Administration and National Institute of Health publish a lot of information about disability trends.

The Financial Forecast Center is also a government-sponsored entity, and they are the ones who are responsible for projecting where unemployment is going to be five years from now. I'm not sure whether we believe anybody's projections on those things. It seems to be largely guesswork, but that information does reside there.

Before I get into the economic trends, I wanted to just run through some of the societal trends that seem to have some bearing on LTD. Americans are reporting increasing stress. I saw a number of different references to that. That definitely has an influence on LTD. The increase in stress leads to lower job satisfaction and mental, nervous type disorders or whatever. In spite of the fact that we live in good economic times, and everything looks fairly rosy, this increase in stress is not a good sign for disability.

Forty-one percent of children attend 35 or more hours of nonparental daycare each week. That's up from what it has been in the past. What's the effect of that on disability? I don't know. You could have a discussion on that. I think that if your kids are in daycare, you tend to be more likely to file a claim so that you can be home with them. On the other hand, you may have a stronger feeling that you need to work to support that the cost of daycare.

Mike is going to cover the aging of America. Job satisfaction is down 20% since 1993. That's according to employee response. So that's subjective, but I think that is a remarkable statistic; again, I think it is one that does not bode well for disability. I think it's related to Americans reporting increasing stress, and also the fact that the U.S. is the only industrialized country where work hours are increasing. That's interesting because I would like to see my work hours decrease. It relates to that fact that we are ambitious, which is good for disability, until we start to burn out. It also relates to job satisfaction. I think if you're working harder, you're more likely to get stressed, and you're more likely to feel as though the disability is more than you can bear.

While reading through all these societal trends, I came across this quote, "Corporations will raise downsizing to a fine art. Most company payrolls will consist of an insanely overpaid CEO, one psychotic managerial type who never eats, sleeps or uses the restroom, and one underpaid administrative assistant who mainlines antidepressants." This is a joke, but I think that this is the direction that our workplace environment is headed. This is the negative indicator for disability.

I don't think there has been a lot of work to take that economic information and apply it to disability. So we're sort of starting slow, seeing what we have. We can have a little discussion when we get to that point about what the effect of some of these things are. But at this point, I have just kind of run through them, so I'm going to give you my two-bit take on it. Hopefully, we can have some sort of discussion about whether there's value associated with these indicators, and what effect it could have on disability.

The total U.S. unemployment rate has been the success story of the 1990s. The unemployment rate continues to drop. In fact, I saw something recently that said it was at the all-time, 30-year low. You can see that there has been a steady decline. I don't know where the economic forecast of unemployment comes from, but I think the economists tend to be somewhat pessimistic. There's a feeling that something has to give in our economy. The unemployment is too low, and that drives demand for jobs, which is just going to drive up salaries, which is going to lead to a declining economy, which is going to lead to unemployment, or whatever. I guess that's the kind of thinking that's going on.

I don't know whether you believe this or not and whether you are going to build this into your five-year rate plan. I think the important point on this is that we've had a long period of sustained decline in unemployment, and of all of the economic indicators, the change in the unemployment rate has most often correlated well with disability experience. Unemployment goes down and disability goes down. Unemployment goes up and disability claims go up. There is no doubt about that. I think this is a warning to us. We're in the very best of times with regards to unemployment right now. It is the very best that we've had for 30 or 40 years. So if things go south a little bit, what will that do to disability?

Chart 1 is U.S. layoff separations, 1995 to present. This bounces around a bit. This is the type of statistic that is better to have by industry, and in fact is available by industry. It is better to see layoffs and separations that have occurred within different industries. There's no doubt that this one correlates pretty well with LTD. If you have an industry that experiences a lot of layoffs, you get a lot of claims. It's kind of obvious, but it's definitely something that's worth tracking. It's bouncing a little bit in general. I'm not sure that you can tell a whole lot from it. The first quarter of 2000 is annualized. So it's not like we have a huge amount of layoffs already.

Chart 2 is the ten-year Treasury rate. This is a very important one for disability because it affects the return on the investments that back the disability product. This is one that absolutely every pricing actuary should be incorporating into their rate, and I think most companies more or less do it. Again, the point is that the rates have been declining during the late 1990s, but it's beginning to creep back up. Again, we have a forecast here, which is pretty pessimistic. I don't know whether you believe that or not, but if these forecasts come true, then unemployment goes up, and the discount rate goes up, so they'll kind of offset each other. This is a good thing for disability to have this rising like that.

There has been a steady decline in unemployment. We need to be making a lot of money in disability in periods like this because this is not going to last forever.

Chart 3 shows the success story of the 1990s. The gross domestic product continues to climb at a uniform rate. It's the longest expansion of the economy since that information has begun to be tracked. What does this mean for disability? We continue to have a healthy economy. I like the projection on this one.

**From the Floor:** Aren't the projections on unemployment and gross domestic product inconsistent?

**Mr. Leavitt:** That's right. There are two different groups in the Financial Forecast Center that aren't talking to each other or something.

Chart 4 is an interesting chart. It is the index of consumer confidence. This is used by economists as a leading indicator for economic growth or any type of slow down in economic health. I think it does play a role in disability as well. I believe that if you feel confident about the economy, and everything is going well, you're less likely to go on claim. This is one that has been a good, consistent sign for disability over the last few years. In fact, I heard that sometime in March, consumer confidence was at an all-time high. Everyone was feeling great about things. Again, that's something to monitor. I would really think of it more as a leading indicator.

In some sense, what we really need to do as disability pricing actuaries is become economists to a certain extent so that we can kind of have some sense of what the future will hold. We can adjust our rates prospectively. In other words, the idea here is to be a little bit proactive about how you rate LTD. You shouldn't wait for the experience to go bad. If you have indicators that things are going sour, then you need to respond with your rates immediately rather than waiting.

U.S. employee growth in Chart 5 shows a similar success story. We had a recession back in the 1990s. Since then, it has been fairly steady U.S. growth of employees. This is one that is available on the Bureau of Labor Statistics by a lot of different categories. I think it is a real handy one to grab onto. There is going to be some correlation between employee growth by industry; for example, there is the disability performance of those industries. I think that if there is a lot of growth within the industry, that is a sign that it is healthy, that jobs are available, and that people are going to be less likely to file claim during those times.

Chart 6 is an example of how you might use this information in a quantitative way. I really think of this more as modeling as opposed to having one correct answer. What is the effect of each of these? We see employee growth, change in unemployment, consumer price index (CPI), and so on. What's relevant for disability as inflation goes up is whether it is a good or bad thing for claim cost. I think it is a good thing because your replacement ratio seems less worth it as your claim extends. Inflation is probably a good thing in and of itself for LTD to the extent that inflation affects other economic quantities, and that's possibly going to be a bad thing. So there are some competing influences there.

I took each of these items—like consumer confidence and the Treasury rate—and I estimated the impact it would have on LTD risk. That is so I could look at the aggregate effect of all of these over time. What's more interesting for me to do on this is to vary the effects across these different things, and see whether you have a



stable pattern that emerges, or whether you see something that changes a lot. As I said, the point of what I was saying earlier is that we really don't know directly how these affect disability, but we can kind of speculate.

I think it's primarily driven by the Treasury rate, which declined in the late 1990s, and the CPI, which has also declined. Both of those things primarily drove the risk index up from the low in 1995 to a higher amount now. So that's a little bit surprising, and not quite what I would have expected if I just didn't do some sort of quantitative comparison of these. You believe this only as much as you believe the rating factors associated with each of these quantities, but it's interesting to play around with.

Chart 7 is doing the same thing. This time we're looking at employee growth and unemployment, both of which are readily available. In this case, I did it by region, and looking at how this risk indicator would vary over time by different regions. The southeast and California were in very bad shape relative to LTD in the early part of the decade, and have steadily improved. Whether that corresponds with your own experience in those areas depends upon a lot of other things. You know how you are priced within those regions, and what other dynamics are going on within those regions, but I think this is actually pretty straightforward. I do believe unemployment and employee growth both affect disability. I think it is a reasonable model. You can look at your own regional factors to see whether they correspond and where the changes that you made in these factors correspond to these trends.

So this is just an example. At this point, at the Smith Group, we are really only starting to gather a lot of this information, and think about how to use it. So we are really in the early stages of putting a lot of this to use. I do think it is important to gather the economic information, and it's important to take a look at it. Later, we can discuss the important indicators, and what we think does not have a big effect.

**Mr. Temple:** For my portion of the discussion I picked five labor and demographic topics: occupational mix, compensation, tenure, workforce (birthrates and mortality), and gender compensation. The Department of Labor (DOL) estimates that the civilian workforce will grow from 12% to 13% over the ten-year period from 1998 to 2008. This is roughly the same rate that we have experienced over the previous ten-year period. However, the DOL is projecting some pretty significant shifts in the types of jobs, as well as the age and gender makeup of the workforce. In addition to covering information on these three topics, I'll share data on trends we've been seeing with compensation and tenure.

The first trend I want to cover is the changing occupational mix. The long-term shift in the U.S. economy from a goods-producing economy to a service producing economy is expected to continue. Chart 8 shows the projected growth rates for the nine major occupational classes. The overall average is 14%. You can see that the projected growth rate for the professional specialty class is the highest. This group is comprised mostly of computer professionals. Regarding the content of a couple of the other categories, technicians and related support includes health care and legal professionals, and services where a lot of business service groups fall.

One of the principal implications of this chart is that the traditional occupational markets of individual disability providers are expected to grow at above-average rates.

The second trend I want to cover is the increasing use of variable compensation. The most common compensation structure with senior executives today is a base salary, some form of annual incentive, and a long-term incentive program. The change that we've noticed taking place over the last five years is how these compensation structures are no longer concentrated on senior management; rather, they're used across different levels within the organization. You can see I've received some statistics about the use of stock options among different employee levels. It's no longer concentrated on a handful of industries. I think most of us when we think of stock options tend to think of high tech, and initial public offerings (IPOs) and those types of situations, but the use of options is becoming widespread across a number of industries. For instance, I saw a statistic in *USA Today* (May 23, 2000 issue)—that 63% of companies give out stock options to their overall employees.

Of course, the challenge for disability carriers is how to define earnings with different forms of earnings. We give our customers the level of protection they need, but we don't get ourselves in a position of overinsurance.

The third trend I wanted to talk about is declining tenure. Table 1 shows that overall median tenure has declined from 1996 to 1998, and that the results vary by industry. For example, the shortest is in retail trade at 1.8 years, and the longest is in government at 7.3 years. I don't think these statistics should surprise anyone. A word of caution: when you interpret median tenure statistics, a number of factors can influence them. For instance, declining tenure can result from either downsizing or the rapid hiring of new employees during periods of growth. So you need to look beyond just what the number is and focus on what's driving the number.

TABLE 1  
DECLINING TENURE  
MEDIAN YEARS OF TENURE WITH CURRENT EMPLOYER

<b>Industry</b>	<b>1996</b>	<b>1998</b>
Agriculture	3.4	2.9
Mining	6.1	5.6
Construction	2.9	2.7
Manufacturing	5.4	4.9
Transportation	5.2	4.8
Wholesale Trade	3.9	4.1
Retail Trade	1.9	1.8
Finance	4.1	3.5
Services	3.0	2.9
Government	6.9	7.3
Total	3.8	3.6

Source: U.S. Bureau of Labor Statistics

In my opinion, one of the principal implications of this trend is that there's going to be a growing emphasis on voluntary contributory plans, especially the portability feature. Employers will find these types of plans are more attractive to contemporary employees.

The fourth trend is an aging workforce. There are two fundamental demographic forces driving this trend. The first one is flat fertility rates (Chart 9). This chart shows the historical fertility rates from 1960 to 1995. Most countries have falling fertility rates; the U.S. is the exception with flat rates since 1975. Of course, the second force is improving mortality (Chart 10). This chart illustrates improvements in LTD disabled life mortality experience from 1986 to 1996. The expected basis for this actual/expected (A/E) comparison is Table 95a. I should note that we've seen this trend continue in the UNUM Provident claim block. The improvements are being driven by mortality improvements for AIDs and cancer..

Forecasting future mortality is always tricky—who knows whether these trends will continue? However, even at their current level, they will put pressure on the reserve valuations of our existing claims, as well as reserve buy-out quotes.

How will the aging baby boomers impact disability incidence? The effects of aging will be felt not only on disability costs, but also on government pension programs and health care program costs as well. As a result, we may see more cost shifting with the employer or government-sponsored disability programs.

I believe a key unknown is—how will the baby boomers react? During the 1980s, conventional wisdom told us that, due to inadequate savings, they would have to work well past traditional retirement age. In the 1990s, due to the stress and burnout that Rick referred to, as well as the wealth created by the equity market growth, the "experts" are predicting that everybody is going to retire early. We'll just have to wait and see what actually happens.

The final trend I want to note is the changing gender composition of the workforce (Chart 11). This trend is also pretty well known—it has been going on over the

last 40 years. This chart shows you the percentage of female participation in the workforce. It has been driven principally by the increase in the percentage of working moms in the workforce since 1960. What I think is less reported and discussed is that the participation rate of females varies significantly by industry (Table 2). This chart lists female participation rates by major industry groups. The average is 46%, but the by-industry-group results range from a low of 9% in construction to a high of 62% in services.

Also, I'd like to share two other facts with you regarding the types of jobs. First, the federal government estimates that the number of women starting their own business during the 1990s was double the national average. Second, the Census Bureau estimates that the number of women in executive and managerial positions grew at 29% from 1993 to 1998, and that's compared to 19% for males. Not only is there varying participation rate by industry, but the types of jobs that women have traditionally held has changed dramatically during the 1990s.

The last chart that I wanted to show on the gender composition issue (Chart 12) compares the relationship of mortality and morbidity rates between males and females. It's a little of an apples-to-orange comparison. But I'm not trying to compare the difference in mortality versus morbidity rates, but rather show their relative importance to the genders. The takeaway from the last 2 charts is that the female market is growing in importance, and there's a tremendous market opportunity for the carrier that can do a good job serving it.

In Table 2. I wanted to change the perspective a little bit. Most of Rick's and my comments have been from the perspective of an insurer or reinsurer. So I wanted to take a couple of these trends, and give you an example of what I thought the impact might be to one of our customers. These are just my personal interpretations of a couple of the trends that I picked out, and what I think they mean to our customers. I'd encourage you to add to and/or edit this list, as you see fit. I included this as a reminder that we need to think of these issues from our customers point of view and not just our own perspective.

TABLE 2  
 VARYING FEMALE PARTICIPATION  
 FEMALE EMPLOYMENT BY INDUSTRY

Industry	Percent Female
Agriculture	25
Mining	14
Construction	9
Manufacturing	32
Transportation	29
Wholesale Trade	30
Retail Trade	51
Finance	58
Services	62
Government	44
Total	46%

Source: U.S. Bureau of Labor Statistics

That's the end of our prepared comments. I'd like to encourage the audience to share its views on whether this is the right list of key trends and challenge our interpretations of what these trends mean to the various parties affected.

**Mr. Leavitt:** I would be interested in hearing about whether there are external factors other than the standard rating factors that are actually being used or incorporated in anybody's method of rating LTD. Do you think the list of economic indicators that I've presented is the appropriate list to consider, or are there other indicators that are available? I would be interested in a discussion of how important we actually think those are. Is there any sense that economy drives disability, and to what extent does it? Is it a big driver of disability or a small driver of disability?

**Mr. Thomas R. Corcoran:** I think that your discussion is a very valid one. I think the points that you made are ones that people have been wrestling with for awhile. You defined the decision points, but they really tend to be individual decision points rather than industry decision points.

I think they tend to be very specific. We have had people in the past who have tried to correlate these factors to disability experience, and have not been able to come up with anything they could really work with in terms of rating. I believe I sat through a presentation similar to this that Paul Hitchcox did about eight or nine years ago. He tried to correlate the data at the industry level. And I know Warren Cohen at CIGNA has done something similar.

I think we're on the right track, but I think one of the things that we have to look at is the translation of making this information into something that's a true predictive tool.

**Mr. Leavitt:** Right, I agree with that 100%. That was the point of my earlier discussion to try to contrast these observations with how we normally think of using this type of information. In other words, I think the point is exactly right—it's

information that flows through individual decisions. It's very difficult to aggregate. It doesn't really even fit into our current models. The evidence is that if you do a simulation of disability based upon your underlying dynamics (the incidence rate, recovery rate, and so on) and use that to predict the variance in the experience that you'd get among different groups, it never matches the actual observed variance. There's something a lot more complicated going on.

Because I wear my statistical hat, I knowing the way these influences are interrelated and dependent on each other. I'm not very optimistic that the traditional approach, which is what Paul and Warren have tried to use, is really going to have a whole lot of success. There has been a lot of intelligent actuaries trying to make use of this information for quite some time, as you noted.

I'm not offering a whole lot of suggestions of what to do other than to say you have to view it in sort of general, subjective way. That's clearly not a really satisfactory answer. We're all quantitative people, and I would love to be able to say this is worth this amount. Of course, even if it was worth that in one period of time, it's not necessarily going to be worth that two years later when other factors are influencing it in a different way. So I guess I acknowledge what you're saying, and I'm open to any suggestions about whether we really can make valuable use of this information.

**Mr. Corcoran:** I think that the trends in the industry might indicate that the time is coming where these would be valuable or that there's opportunity for new kinds of underwriting. I mean the industry is moving more towards a voluntary-type coverage environment, as you indicated. In addition, the massive databases that are available now do open up the opportunity for individual underwriting. Of course, individual underwriting presents a whole different set of issues, privacy issues and even genetic testing, for example. Insurers are wrestling with those issues on the medical side currently.

**Mr. Leavitt:** That's a good point. Because of the way the Internet works, and that all this information is basically at your fingertips, the model of where the actuary gathers the information for rating might be changing. For example, an economic or even an industry-based adjustment to the rates is probably not the right way. Rather, the right way is when underwriters are underwriting individual cases, and all of that information is something that they will look at.

This would argue for expanding the types of information that they look at to general, more macroeconomic considerations, as well as the detail specifics about that particular case. It's unlikely that we're going to be able to provide the underwriter with the chart, so he or she can enter all the information in and come up with your adjustment. It has to be more subjective than that.

**Mr. Temple:** I have one additional comment with regard to the use of economic data. We've considered gathering prospective information and building it into our manual rates for LTD. Unfortunately, you may run into opposition from the state insurance departments regarding rate changes that are not experience-based. As an alternative, we've tried to principally use this type of information to steer our marketing mix rather than distilling it down into a rating component.

**Mr. Corcoran:** I think you also get into the issues of whether it's group underwriting or the underwriting of individuals. If we start to underwrite the individuals within a group, we'll open up a whole new set of issues.

**Mr. Daniel D. Skwire:** I just wanted to bring up one other possible economic indicator, which would be performance in the stock market. I think that is a newly emerging indicator for this sort of thing. There has been plenty of press about Allen Greenspan lately, and there was a recent article about how he has begun to give increasing credence to the role of stock market performance in driving the economy. For decades and decades, it was kind of orthodoxy, and at the Federal Reserve, the stock market really didn't have much impact on the performance of the overall economy. You discussed some of the trends, such as increasing prevalence of stock options as part of compensation. A very high portion of people's wealth is tied up in the stock market, and it seems that it could almost be kind of a leading indicator for unemployment and some other kinds of things that can come up. So I'm interested in your thoughts on that, whether that makes sense, or whether it's just too crazy and volatile to be meaningful for disability.

**Mr. Leavitt:** Right. I'm sort of half a mind on both. I certainly agree with you that the stock market is not driven by economy, but it might be the other way around. I am not sure whether you can read consumer confidence or other things that might actually affect disability into it. You could speculate that it would. I think that's a good point; it's increasingly important in the lives of Americans. It has to play some sort of role.

**Mr. Temple:** With regard to the insured's covered income, we've largely ignored the value of long-term options to date. When we insure high-income individuals, we try to sell them an individual policy because we get better financial underwriting information. But we're still generally excluding stock options as a form of income for covered earnings purposes. I'd be interested in hearing if other people have alternative ways of treating options. On a test case, we unsuccessfully tried using Black Scholes option values.

**Mr. Skwire:** It didn't work real well, did it?

**Mr. Temple:** We had difficulty explaining to people how we determined how much protection they were purchasing.

**Mr. Andre C. Baillargeon:** I think that you've got a good list of factors Rick. When you try to measure the averages, I think those individual factors really come into play more on the extremes. For example, the percentage of people that are very unsatisfied with their jobs is not changing, or is maybe going in the opposite direction. In other words, the average isn't necessarily the best measure. If you're using it, you're kind of assuming that the curve is shifting

**Mr. Leavitt:** I think that's an excellent point, and to me, that's one of the features of disability because you're talking about such a small number of people driving your claim cost. We're talking about four out of 1,000. Something that's affecting one out of every 250 people can profoundly affect your LTD results. So that may be exactly right, but the number of people that are extremely stressed out is what

you want to measure. Unfortunately, there's not a lot of information that's available on that.

Consumer confidence type surveys have categories such as very dissatisfied and somewhat dissatisfied. So I think it is important to consider the range of information.

**Mr. Baillargeon:** It's certainly an aspect of it that complicates it by a pretty significant degree.

**Mr. Paul C. Barone:** I was wondering if you could comment on the growth of part-time workers, and what potential effect that could have on disability, specifically the long-term market with the look towards the growth of the Internet, and the fact that there's more and varied ways of doing your job. You don't necessarily work five days a week. I think that's going to have an affect on the LTD marketplace and the claims cost associated with it.

**Mr. Leavitt:** No doubt. Mike, do you want to start with that one?

**Mr. Temple:** First, I've looked at statistics on the growth of part-time workers, and while that segment of the workforce is growing at a fast rate, it's still a very small portion of the overall labor force. Because it's still a small market segment, we've suspended addressing it for the time being.

More people are working from home, and they are still considered full-time employees but they telecommute. We're currently wrestling with how to effectively deal with that trend. Gauging the ability to work might become more difficult.

**Mr. Barone:** From a claims incidence, is there any differential between part-time versus full-time?

**Mr. Temple:** I'm unaware of any studies indicating there is a difference. Rick, do you have any additional comments?

**Mr. Leavitt:** To me, it's probably an issue with product design. The issue is how do you define *capable to work*, and how do you define *gainfully employed*? I think it has been somewhat ignored because it's a difficult-to-deal with issue; however, as it becomes increasingly important, we're going to have to figure it out.

**Mr. Edward G. Bailey:** I just wondered if you knew of any statistics showing the number of families with two incomes, and if you tried to correlate that at all?

**Mr. Leavitt:** I've seen them and they are on the rise. I believe that compared to a two-income family, there's considerably more stress in a single-income household. It also can make it easier for one of the people to go out on claim. So I've always thought of that as a pressure point. It's my belief that it's a pressure point that pushes costs higher.

**Mr. Temple:** We've set up work balance programs to help deal with some of the issues for a two-income family. Remember, at the time you issue a group quote,



you don't have information on the spouse and whether he or she has disability insurance or not. So trying to determine a family replacement ratio is very difficult.

**Mr. Leavitt:** Right. I've thought that work/home balance is definitely one of the items that should be on underwriters' checklists. When they're risk underwriting the case, they should look for things that would tend to increase or decrease costs. The way the company deals with that issue is very important.

**Mr. Temple:** A dual working family situation can lead to some of the flexible work schedules we've talked about when you're trying to juggle two jobs, the kids' schedules, and so on. You need to have flextime to be able to handle all that. They're all interrelated.

**Ms. Lara C. Solmundson:** I don't think that we really explicitly recognize economic trends. One thing that we've had to do in the last few years, is when we're looking at our experience studies on our block, termination and incidence rates, we used to measure it over a seven-year period hoping to reflect an entire economic cycle. We found in the last few years that we've had to lengthen that to eight, nine, and ten years, just to reflect the fact that we haven't see the economy take the other direction, and start worsening. We didn't want to drop off a bad year and add on a good year when that didn't reflect the best situation. I was wondering if people have experienced the need to change their study periods. Another thing is troubling us. Now that we have a ten-year study, and even though it's a good indicator of a full economic trend, we're worried that underlying trends are being masked, which then prevents us from reflecting on how things are truly changing. What are your thoughts on this?

**Mr. Leavitt:** That's a good point. I have a couple comments. One is that I think that this long period of economic stability is difficult for doing accurate LTD rating because of the points you made. You're referring back to very old experience, where all of the other societal trends are playing out differently now than they were last time the economy went down in 1991 or whatever.

The other point I want to make is that a lot of our rating factors have to do with special plan provisions, such as unlimited own-occ. Liberal plan designs really have more meaning during periods of bad times than during good times. When everything is good, the special benefit provisions probably don't provide a huge incentive to go out on claim, but you really need that protection during a down time. My worry is, because we've gone so long without a significant down time, our rating is going to be pretty inappropriate when that time actually occurs. I guess the economy would turn around.

**Mr. Temple:** I agree with your comments on the time horizon and the value of certain plan features, and I would add one point. We've done studies where we look at incidence rates over periods of time under various economic scenarios for instance varying unemployment rates. While we've seen that LTD incidence is slightly correlated to employment levels, individual disability appears to be much less correlated. So the importance of economic cycles might vary with the type of business you're writing.

**Mr. Alex N. Moral:** I just had a couple of comments. I wanted to ask you to comment on these two items. One has to do with the Social Security Administration. My best friend in Illinois is the head of all the Social Security Hearing Officers of Illinois, and we've had this debate about an experiment that Social Security's trying, which is basically a change in how you get Social Security awards. In many states, you still go through different administrative levels to go through appeals before you get an award. You go through what they call a case manager, and that one person makes the decision. What impact would that have on getting benefit offsets from Social Security?

The other thing is, like Tom mentioned earlier, there's a trend toward having more voluntary products. I was wondering if anybody has thought about that, and if you would care to comment about this concept called entitlement. Because the individuals are now paying the premium on the group basis, instead of their employer paying for it, they feel that they're entitled to the benefits. Whether they actually should get benefits or not, they feel that they're entitled to them. It might increase the propensity for them to file claims and receive the claims.

**Mr. Leavitt:** My belief is that's a real effect. I think that we've seen evidence of increased incidence for employee contribution cases relative to others. There's no other explanation that makes a lot of sense. I would combine it not just with entitlement, but with knowledge of the benefit. In other words, when you make that choice to pay for the disability coverage, you know you have it. Today, a certain number of employees probably don't scrutinize their benefits very carefully, and if the employer pays for disability, they might not even realize it. So it's a combination of entitlement, and just awareness of the benefit.

**Mr. Temple:** We've done experience studies comparing incidence rates for payroll deduction, voluntary benefit-type products versus a contributory group product versus a traditional employer-paid LTD product. Most carriers have adjustment factors for the level of participation, and for whether it's contributory or not. Using these adjustments, you can reconcile the incidence rates by working your way across the spectrum. So is there a higher amount of antiselection going on? Yes, but you can charge for it.

With regard to the Social Security, I think that was a great question. That's something that I think is a real risk to LTD. Anybody involved with LTD pricing knows that the anticipated Social Security offset is a huge reduction to the cost and very important to the adequacy of the industry's rates. If the approval percentages changed, and most people think they would go down, that's going to leave us with less for offsets and more risk. I believe this trial is something people ought to monitor closely.

**Mr. Raymond E. Siwek:** As you know, merger and acquisition activities are continuing to increase; in fact they're moving along at a record pace. Have you done any studies to see the impact on claim incidence rates on an account that went through a merger and acquisition while it was on the books?

**Mr. Temple:** We've studied the impact of merger and acquisitions on experience mainly at the sector level. For example, we've studied the healthcare sector over the last five years. Of course, there's a lot of consolidation going on between

hospitals within that sector. We've also followed activity in financial services. Earlier, you saw the median tenure statistics were falling. I suspect we're all very aware of that on a personal level. At the case level, we definitely see incidence rate increases for those companies going through a merger. I've also seen published studies from CIGNA that would show the same thing. What tends to happen is that you pick up the subjective claims—people who were borderline claims. Once they are faced with the prospect of downsizing, and potential unemployment, they become additional claims. Clearly, I think this speaks to Rick's point about there being a lot of subjectivity involved in whether you're going to go on claim or not. Rick?

**Mr. Leavitt:** All I would add is that I've seen anecdotal evidence that is very compelling. As a big case goes through a merger and does a layoff, suddenly there's 20 disability claims. It seems obvious, but whether the long-term study shows that it consistently correlates, I'm not sure. But clearly, with individual case examples, it definitely occurs.

**Mr. Siwek:** We studied a number of large groups. We followed them through their M&A activity, and we saw that claimants really remained flat or actually dropped 12 to 18 months following the merger. I think everybody kind of sat tight and wanted to see how the new management team would do. Later, after about 18 to 24 months, the incidence would spike dramatically, and it seemed to happen in almost every case. Of course, it was the subjective, self-reported claims that were coming through.

**Mr. Charles H. Meintel:** I just wanted to make two quick comments. One, I got the impression that we wanted to be able to put these indicators in a pricing form and come out with a set of rates. I think there's another way that these data can be used, and that's through either the marketing plans or the underwriting departments of the various companies to be able to turn on and off the aggressiveness of which you might go after one industry or another. So even though you don't have it specifically in your rating formula, you can sort of use that information to help better price individual risks.

Relative to other types of indicators, I think there's a whole level of other indicators that hasn't been mentioned here. Tom, you might have alluded to it a little bit, but with the Internet, you can get all kinds of information about specific groups. For example, does a group have a high number of drunk driving tickets, or DWIs? Or does a group have a high percentage of home ownership? If your company is studying various types of correlations between disability costs, and all these indicators, there's a whole level of statistics or indicators that you can try to correlate with good disability experience or bad disability experience. You can use those data to make better risk decisions or pricing decisions.

**Mr. Leavitt:** I think that's an excellent point, and I think it creates a real advantage that's going to be provided by this information being available on the Internet. The underwriter will be able to gather that information, and those are great things to look at. Just look at motor vehicle records that the disability underwriter was talking about at another session. That's a great idea. I'm not sure what is and isn't available on a case level, but anything that can give a true measure of the underlying risk is helpful. At the beginning of the presentation, I pointed out the

huge mismatch between the information that we actually would want to know and what we actually gather. Anything that can expand what's available is going to make it easier to make those decisions.

**Mr. Temple:** We've been looking at some outside databases and trying to marry additional pieces of information to our good and bad customers. To date, we've been approaching it at the employer level because we felt like there were certain privacy issues with regard to getting individual claimant information, and how you use that. So I just would add a word of caution about what type of information you get and use. Sharing that information with different people can create sensitive confidentiality issues around certain individual pieces of information.

**Mr. Eric Poirier:** I have a comment on social trends and the increase in dual-income families. Earlier Ed talked about the income replacement ratio per family unit, and I was telling him about my brother. He had a claim not too long ago. He was collecting 60% of his earnings, He called me and he said, "Eric I know why you're not making money." "It's because 60% is way too much. I said, "We've been doing this for 14 years. It has always been 60% percent, it has to be right." But while I was saying this I realized that he was right. This trend is not something that happened in the 1990s.

My mother was not working in the 1960s. She started to work part-time in the 1970s. She was a full-time bus driver in the 1980s, and she retired in the 1990s as a full-time worker. So this is a very long trend, and yet the industry has not reacted at all. We're still see that 60% is the standard benefit, and we're not changing it.

We've talked about how we're not collecting information with regards to family income. Other lines of insurance in the 1970s, such as medical and dental, had just employee, dependent rates. Later they had employee and spouse and child rates. Eventually, they went to rates for the employee, one dependent, two dependents, and so on. They have recognized the changes in family unit. The disability industry has not yet made changes like that.

**Mr. Temple:** With regard to the benefit percentage, most companies offer a full range of options and let customers choose between a range of 40% to 66.7%. Perhaps our charges are inadequate, which might give way to some of the malingering that can result. Or perhaps we ought to encourage people to buy lower replacement amounts.

**Mr. Patrick W. Wallner:** My question is about trying to predict the next shock to the system. We saw the whole managed care industry shaken to its foundations in the 1990s with the arrival of managed care, and the effect that that had on physicians and their human decisions around whether to work and not. Any thought as to what kind of indicators could be monitored to try to anticipate the next shock to the system in any particular industry.

**Mr. Leavitt:** Unfortunately, something like managed care is something that wouldn't have been picked up by any indicators. It's a change in the way that the profession operates. And that's why it really is important to be knowledgeable about the different industries. I don't know what the next thing is gonna be. I can

speculate that when the speculative bubble of the stock market crashes, security brokers are not going to be a good risk. I don't know whether that will occur or not. That ability to prognosticate is extremely difficult. If you can do it well, then all the power to you, but I don't think that that kind of thing is necessarily picked up by these sorts of aggregate indicators.

**Mr. Temple:** In my opinion, the best way to manage that type of risk is through diversification. This was one of the areas that I think we didn't do a good job with in the 1980s. For instance, in individual disability some companies had too much concentration of risk in a couple of sectors. I think it's unlikely that we would be able to predict which sector is next; and we're always going to have sectors that have poor performance. The key to controlling your exposure, in my opinion, is to be diversified across a number of different sectors.

**Ms. Pamela J. Saunders\*:** In response to that last question, and given the shift that is occurring from industrialization to technology, should we be watching more gray, blue-collar service industries to see what happens to them in a scenario that's similar to managed care?

**Mr. Temple:** If you believe that long-term shifts in job growth impact disability claim experience, then the answer is yes. But I must give a word of caution here. The cover story in the latest issue of *Time* magazine projected the hottest jobs of the future. The author of one of the stories projected that in 10 years, 90% of the white-collar jobs we know today will be substantially changed or will not exist. This is in direct opposition to the occupational growth rate projections produced by the Department of Labor that I showed you earlier. So depending on where you go for your projections of the trends is how to determine what segments you should be watching.

**Ms. Saunders:** Right, I would agree. I think home jobs are making a difference as well. The segments that are expected to grow the fastest are people working at home, consultants in the industry, and health care. With the experience we've had in that segment in the past, how do we predict what to expect in the future?

**Mr. Leavitt:** The other thing that I would add is that the occupational classifications that many of us use are still rooted back into the old economy—white collar, blue collar, gray collar. What we really need to do with these new types of jobs is reclassify the occupations and start tracking experience based on those new classifications.

**Mr. Temple:** With regard to the healthcare sector, we wrestle with that issue a lot. We cannot afford to completely exit the market, but we don't want that sector to make up 30% of our new sales either. I think it becomes a balance issue.

**Mr. Vincent A. DeMarco:** I just want to tie together what Dan Skwire said about the stock market and what Eric Poirier said about replacement ratios. The factors that the industry has traditionally used are 40%, 60%, or 70% replacement ratios. It's all based on earned income and, historically, income has been very stable. With the change in the economic environment it would seem that earned income for

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\* Ms. Saunders, not a member of the sponsoring organizations, is President of Disability Consulting Group in Portland, ME.

many individuals has changed dramatically. What might have worked five years ago regarding a 60% replacement ratio for earned income might not be the right replacement when you tie everything together. I just want to ask your comments regarding the impact of that.

**Mr. Temple:** I wholeheartedly agree with your comment on income stability. Consider annual incentive plans. What we've done in the past is look at three-year average payouts so we could get some kind of pattern of what to expect. With stock options, you can't do that—their value is very volatile and the timing of their exercise is unpredictable. So the instability of those payments make them very difficult to deal with. I'd be very interested if anyone in the audience would like to offer an effective way of dealing with these issues.

**Mr. Leavitt:** I would add that there seems to be competing things going on here. One is that we need more in-depth, financial information when you underwrite a case. At the same time, we're trying to simplify our underwriting rules and make it easier for the customer. Those are competing trends. The trends you mentioned speak to the need for a much more difficult and rigorous financial underwriting than we currently do for group cases.

CHART 1  
U.S. LAYOFF SEPARATIONS  
1995–PRESENT

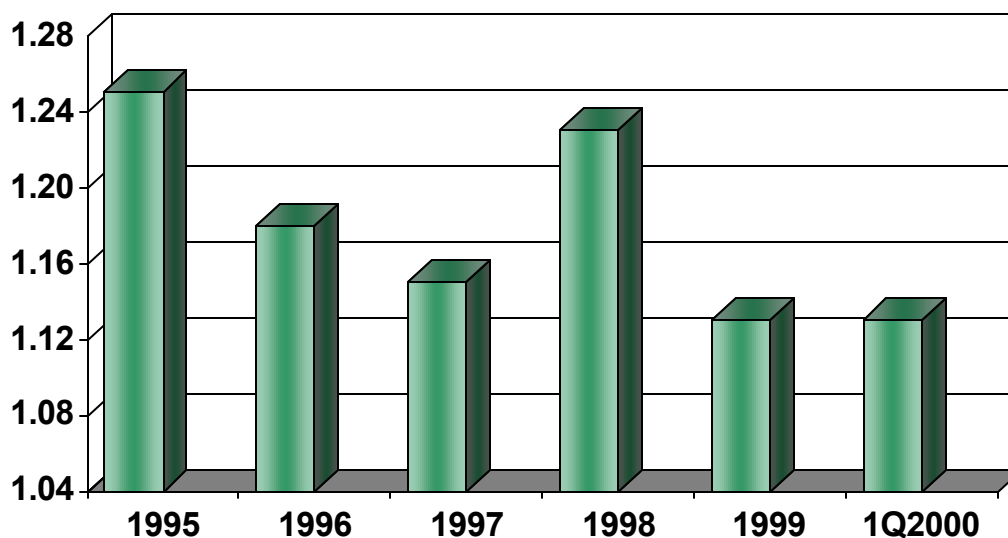


CHART 2  
TEN-YEAR TREASURY RATE

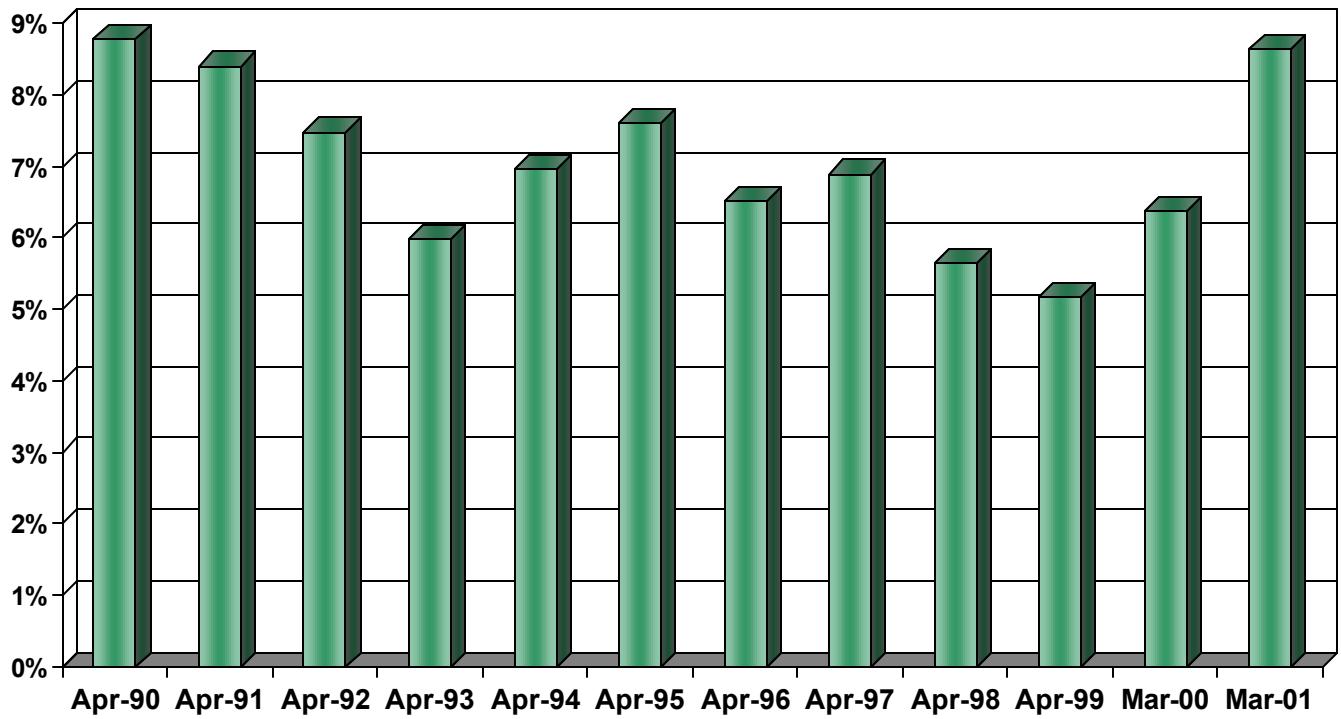


CHART 3  
GROSS DOMESTIC PRODUCT  
BILLIONS OF 4

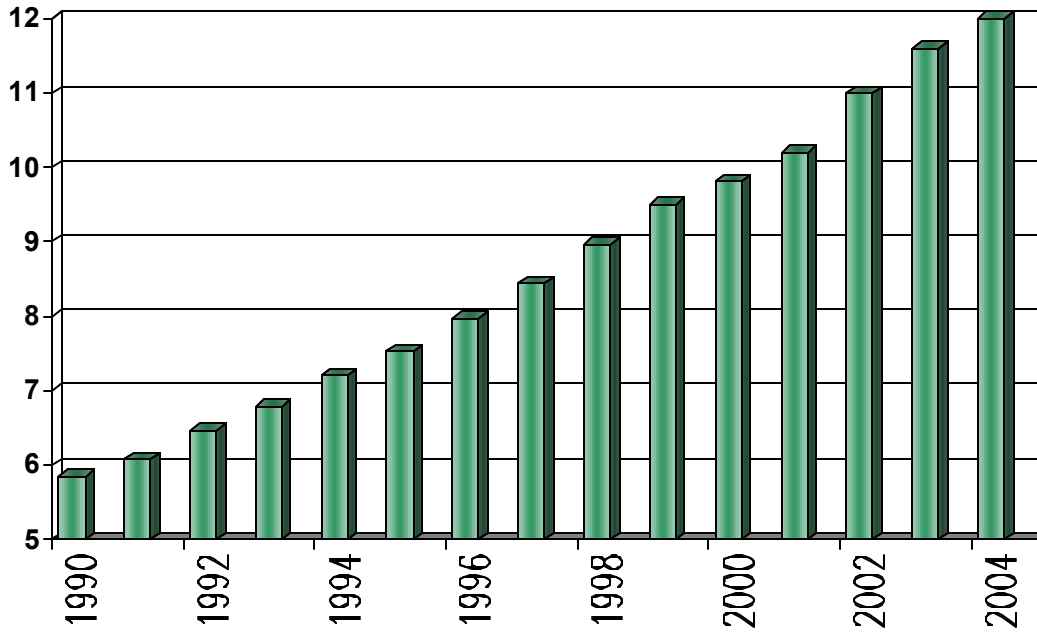


CHART 4  
CONSUMER CONFIDENCE INDEX  
ANNUAL AVERAGE 1990-PRESENT

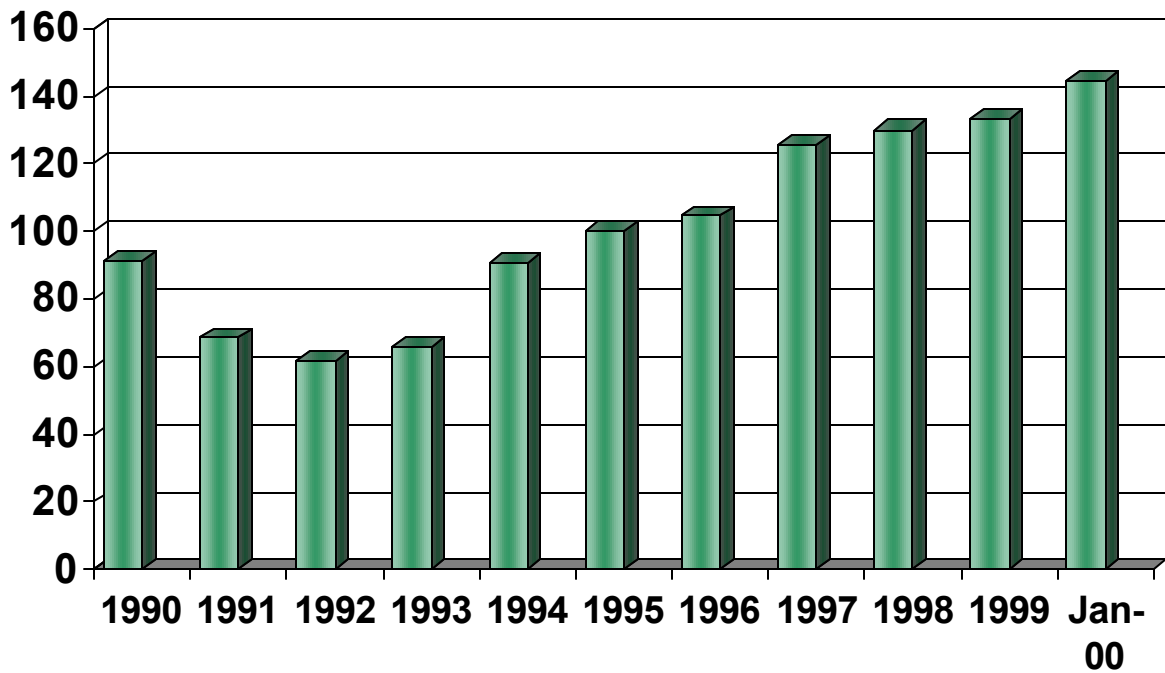




CHART 5  
U.S. EMPLOYEE GROWTH

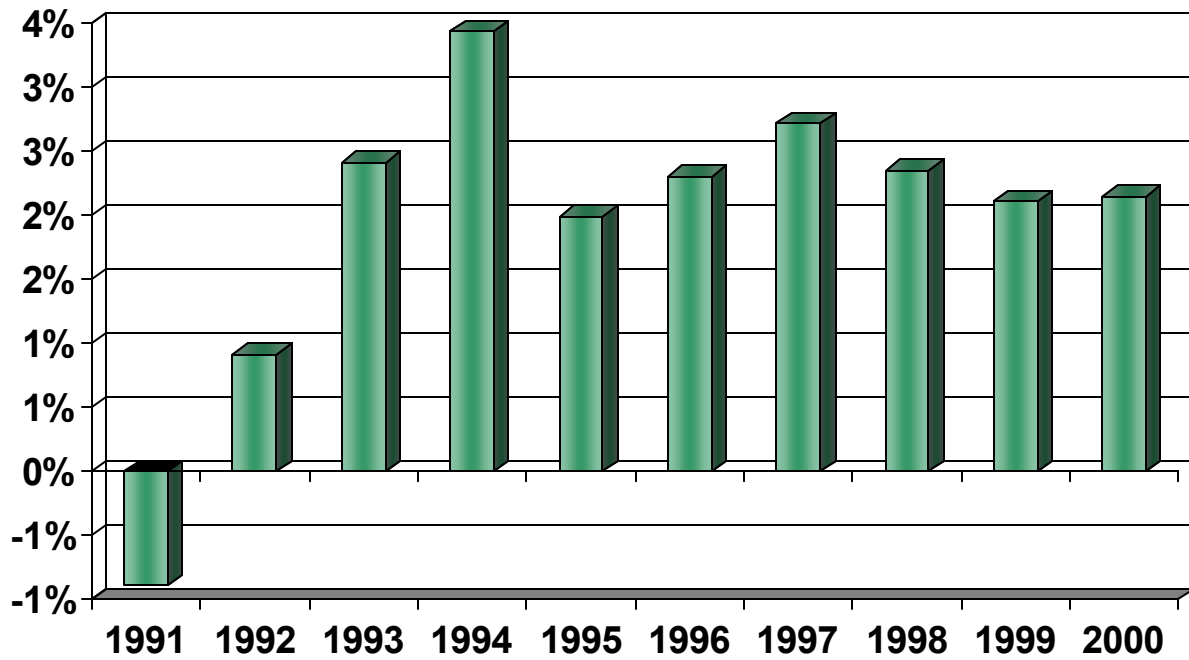


CHART 6  
ECONOMIC RISK INDEX

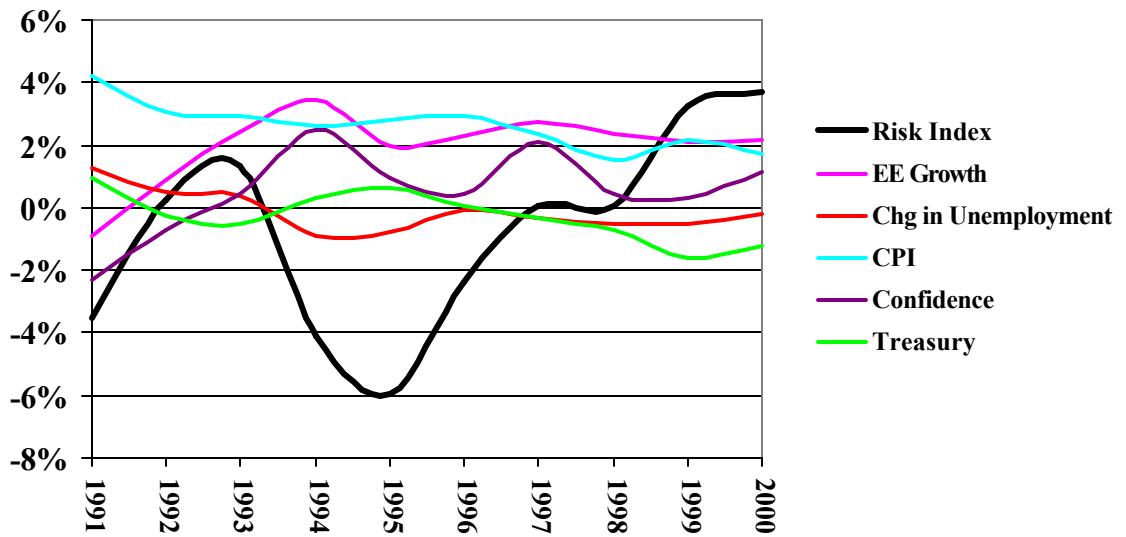


CHART 7  
REGIONAL RISK INDEX  
BASED ON 6-MONTH AND 24-MONTH  
EMPLOYMENT TRENDS

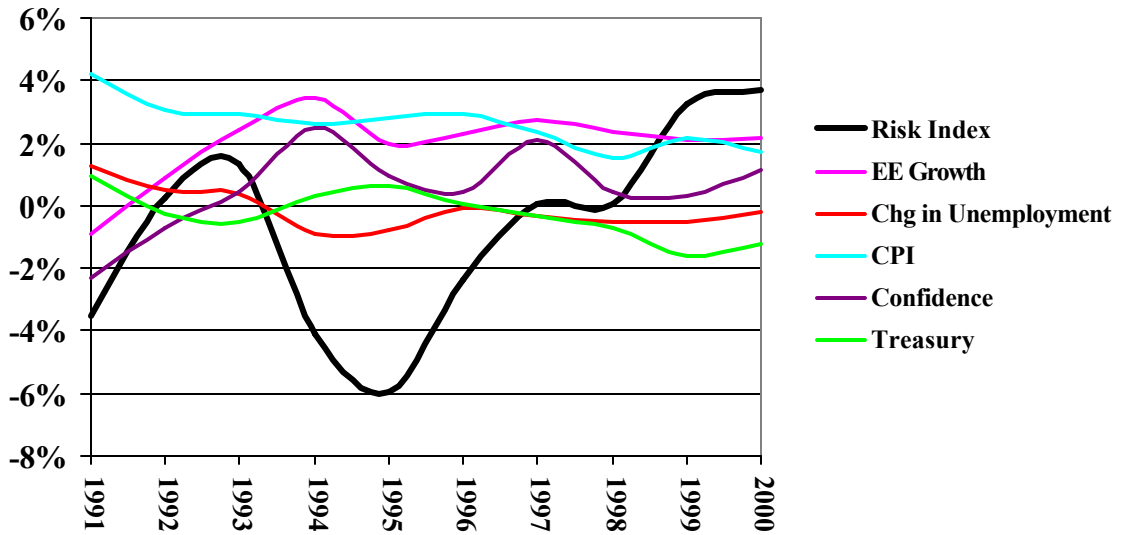


CHART 8  
CHANGING OCCUPATIONAL MIX  
PROJECTED JOB GROWTH 1998 TO 2008

SOURCE: U.S. Department of Labor

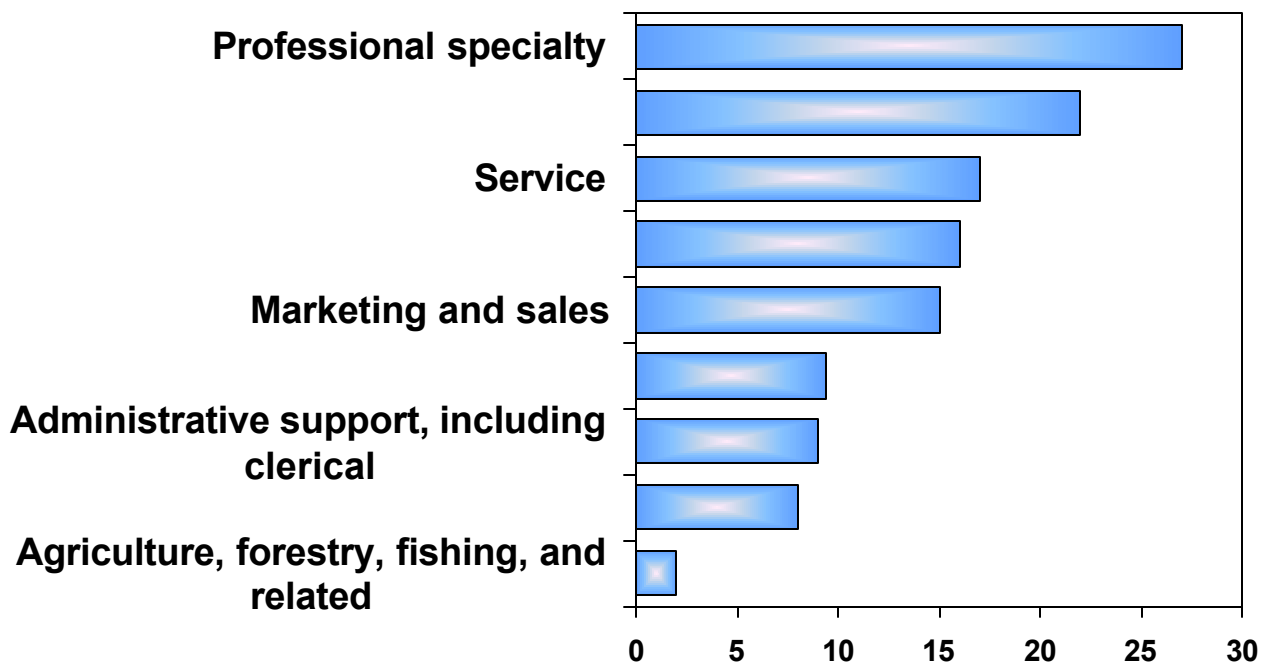
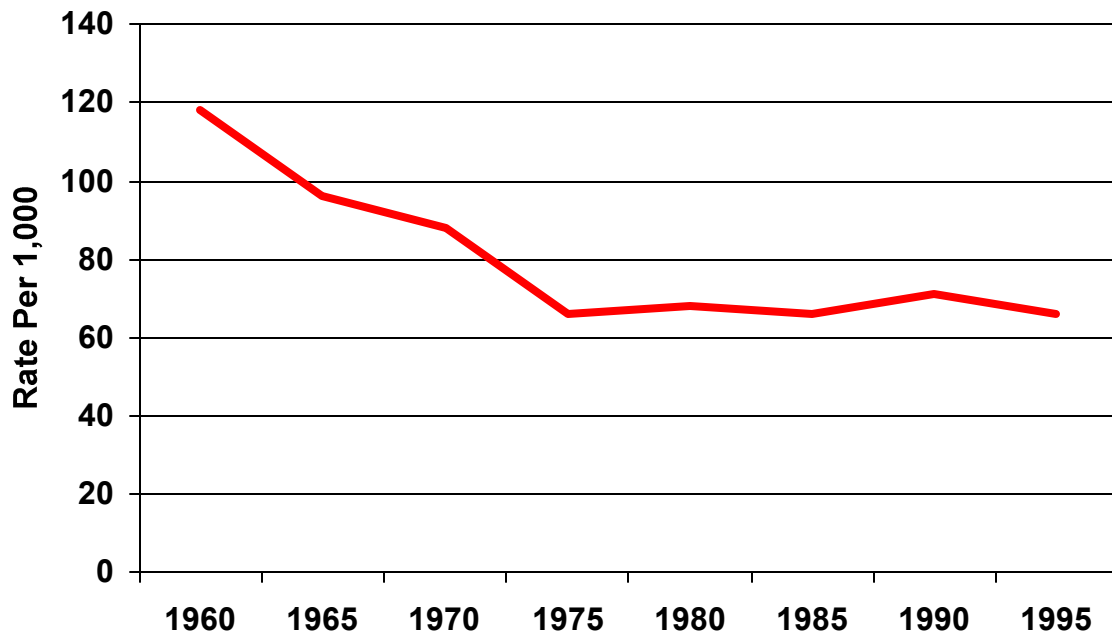
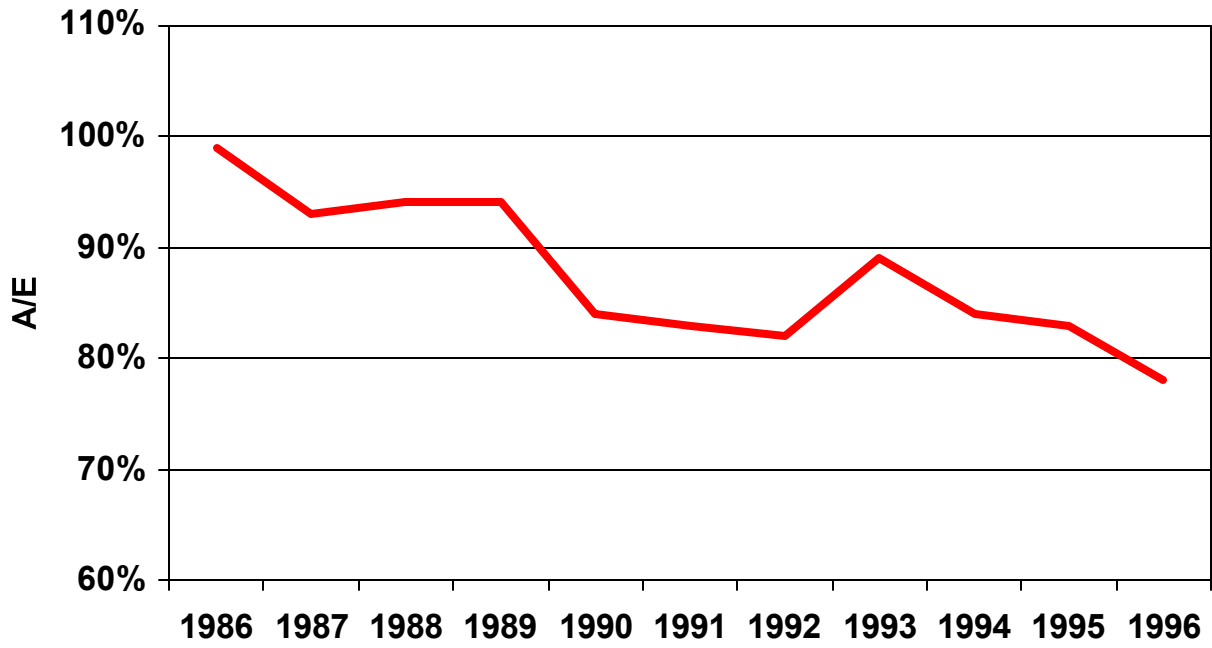


CHART 9  
AGING WORKFORCE—LOW BIRTHRATES  
U.S. FERTILITY RATES



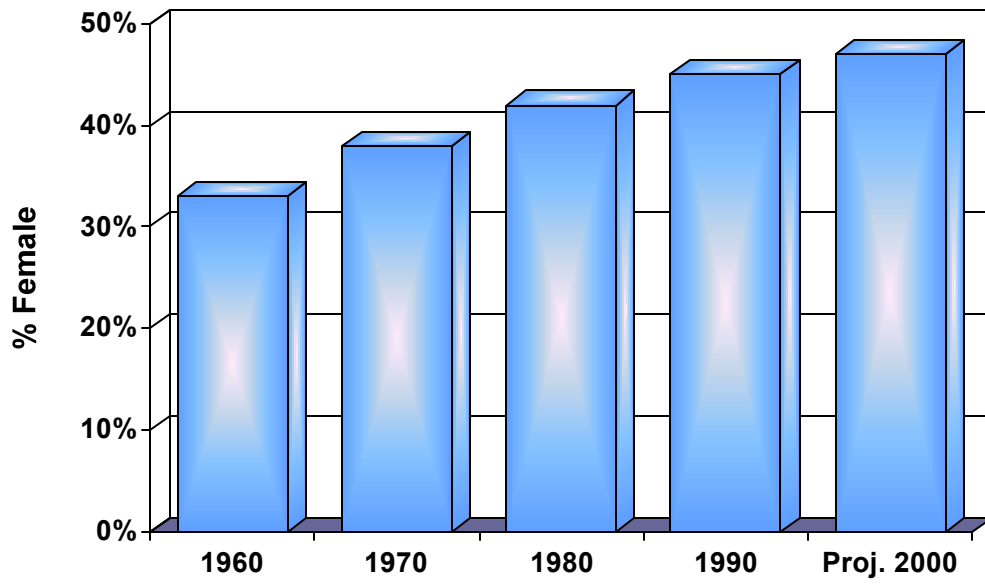
Source: Center for Disease Control

CHART 10  
AGING WORKFORCE -IMPROVING MORTALITY  
DISABLED LIFE MORTALITY



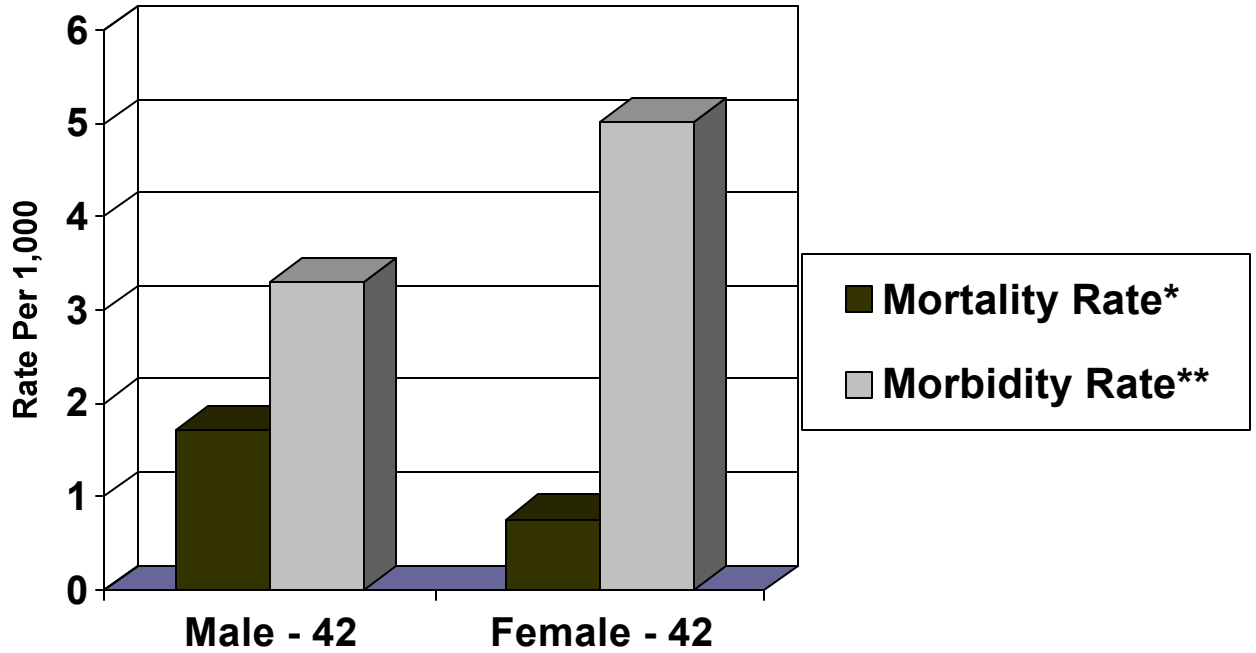
Source: Table 95A

CHART 11  
CHANGING GENDER COMPOSITION  
LABOR FORCE PARTICIPATION OF WOMEN



Source: U.S. Bureau of Labor Statistics

CHART 12  
CHANGING GENDER COMPOSITION  
MORTALITY VS. MORBIDITY



\*1985-89 SOA Study Trended to 1998

\*\*1987 LGTD Study-90 Day EP