DOWNLOAD PDF METHODOLOGY AND TECHNIQUES FOR LONG RANGE PROJECTIONS OF POPULATION, LABOR FORCE, AND EMPLOYMENT

Chapter 1 : Untitled Document

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MAPC began this process with the development of regional and municipal population and household projections for the entire Metro Boston model region. Because the model region includes an additional 63 municipalities in adjacent regional planning agencies RPAs , MAPC convened an advisory team with representatives from neighboring RPAs, along with academic experts, staff from Boston and Cambridge, and state agencies. Because the future cannot be predicted with certainty, identifying a range of possible futures may prove more useful than a single forecast. Consequently, MAPC prepared two scenarios for regional growth. Each scenario reflects different assumptions about key trends. Specifically, the Stronger Region scenario assumes that in the coming years: The region will attract and retain more people, especially young adults, than it does today. Younger householders born after will be more inclined toward urban living than were their predecessors, and they will be less likely to seek out single-family homes. An increasing share of senior-headed households will choose to downsize from single-family homes to apartments or condominiums. Methodology Municipal Population and Household Projections MAPC first developed regional projections of population by age, gender, and race, utilizing a standard cohort survival methodology with age- and race-specific fertility and mortality rates based on information from the Massachusetts Department of Public Health DPH. Household estimates are produced using region-wide age-specific headship rates derived from the decennial census, and they are disaggregated into households by type family versus nonfamily and size. Municipal population projections were initially developed using age- and municipal-specific fertility and mortality rates from the DPH. Any difference between the observed and expected population is assumed to be the result of migration in or out of the municipality. The independently projected population for each of the cities and towns was calculated and compared to the regional control total in order to produce an adjustment factor that was applied universally to each age cohort so that the municipal sum would match the regional total. To estimate change in households, regional headship 2 rates by household type were applied to the population in households for and forecast years, and the difference was calculated. This change in households was added to the actual household counts by age from Census to produce future-year household estimates by householder age. These households were then disaggregated by household type family versus nonfamily , income relative to the area median income defined by the US Department of Housing and Urban Development , and size, based on the distributions observed using decennial census data and ACS microdata. Municipal household projections were allocated to TAZs using the land use model described below. An analysis found that as the baby boom generation ages past the age of 65 in the coming decades, a massive wave of retirement is likely to dramatically alter the Massachusetts workforce, making labor availability a major constraint on economic growth. As a result, statewide employment was projected as a function of the available labor force based on demographic projections. In consultation with expert advisors, MAPC also assumed a gradual decrease in the average unemployment rate over the next few decades. Age-specific labor force participation rate was developed for each RPA and applied to the projected population to estimate the number of employed residents. The Stronger Region scenario assumes a gradual decrease in the unemployment rate, from a peak of 8. The sectoral distribution of employment in future decades was based on a shift-share analysis 4 of Massachusetts sectoral growth versus the rest of the nation, utilizing BLS forecasts to the year , and then continuing an attenuated rate of change for each sector out to the year MAPC then used shift-share methods to analyze how the economic trends of the municipalities in Metro Boston compare to the state. Metro Boston jobs grew an average of 0. As a result, future employment share for the region was derived based on the total employment projection for the state. The logarithmic extrapolation using the shift in share from , , and was

used to determine the respective sectoral shares for and Municipal and TAZ allocation of employment was done using the land use model described below. MAPC defined the agents to be consistent with the previously developed population and household projections as well as employment projections. A total of 24 model agents were defined, composed of 13 household agents and 11 employment agents. The household agents are defined in terms of the age of the householder, the household type, the household size, and income level.

Chapter 2 : Data by Topic - Labor Force / MN State Demographic Center

*Methodology and Techniques for Long Range Projections of Population, Labor Force and Employment [N/A] on blog.quintoapp.com *FREE* shipping on qualifying offers.*

Additional Information In lieu of an abstract, here is a brief excerpt of the content: Thus the various post-World War II "full-employment" models and, more recently, the fiveyear projections of the Council of Economic Advisers used forecasts of the population and labor force as a point of departure and then allowed for frictional unemployment and hours of work to arrive at projections of man-hours of labor input. These were translated into projected or "goal" levels of the gross national product, by allowance for over-all productivity trends in the economy, i. Despite the pivotal importance of the population and labor force trends in the appraisal of future levels of economic activity, economists have dealt only lightly with the assumptions and techniques underlying these projections. For example, until very recent years, they have tended to accept at face value projections of the population conveniently prepared for them by the demographers â€”in effect, treating population trends as exogenous to the economic climate being projected. Moreover, the labor force, as a percentage of the population, has been regarded as either independent of, or only mildly sensitive to, peacetime changes in the level or pattern of economic activity. From the standpoint of fairly short-term projections, of five or ten years ahead, the assumption of relative stability in the labor input factors does not appear unreasonable, on a priori grounds: From any given base year, the population of working age can normally be projected with a fair degree of accuracy, up to 15 years in the future, simply by a survival of existing population Note: The report was also reviewed in preliminary form by members of the staff of the Population Division, U. Bureau of the Census, and by Dr. Long, The Johns Hopkins University, who made many helpful suggestions. This is possible because of the general stability of mortality rates and the limited amount of immigration possible under current legislation. Available data suggest that apart from wars or major cyclical movements, labor force propensities of particular population groups are fairly stable and slow-changing, since they are based in large part on deeply rooted social institutions and customs as well as on the prevailing geographic and occupational structure of employment. Once a proper base level is determined, consistent with the economic climate being forecast, extrapolation of past trends for specific population groups provides a reasonable point of departure. Moreover, an assumption of linearityâ€”clearly unfeasible in the long runâ€”may prove adequate for shorter-term periods. Similarly, institutional and structural factors affecting "frictional " unemployment and hours of work can also be assumed to be fairly stable over the short run, in a given socio-economic environment. Trends in population, labor force, and hours of work can no longer be conveniently considered as autonomous forces, but are themselves influencedâ€”in varying degree and at different time intervalsâ€”by basic structural changes in the economy and by many related socio-economic factors. For example, even within the broad framework of a peacetime "full-employment" economy, it is possible to construct sharply contrasting models, with different implications for labor force levels and trends. A consumption -orientated economy, with relatively low savings and investment rates, and stable or declining prices, would probably be accompanied by a lower labor force and lower average hours of work than an economy with high investment or defense expenditures , and predominantly inflationary tendencies. The task of the analyst is rendered even more difficult by the fact that, although he may be able to judge the general effect of economic movements upon the separate labor input factors, he cannotâ€”with available data and techniquesâ€”attempt to quantify these effects with any "scientific" precision. At best, he can present some rough approximations or a broad range within which the "true" level may You are not currently authenticated. View freely available titles:

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Chapter 3 : Long-Term Occupational Projections - New York State Department of Labor

Methodology and techniques for long range projections of population, labor force, and employment; proceedings of Institutes held at the University of California Extension, San Francisco, May 13, , and at the University of Southern California, Los Angeles, May 18,

Projecting the Labor Force to Like much of the United States, Indiana experienced dynamic growth in the size of its labor force during the last half of the 20th century. Labor force growth slowed during the difficult s but rebounded strongly the following decade. Indiana Labor Force, to Note: Beginning in , the Census Bureau defined the eligible labor force as the population age 16 and older. It was 14 and older prior to While the recent economic slump may have contributed to this lackluster performance, labor force projections produced for the Indiana Department of Workforce Development by the Indiana Business Research Center IBRC indicate that this slowdown is less a byproduct of the Great Recession and more likely a harbinger of continued slow growth in the coming decades see Figure 2. Indiana Labor Force Change, to Source: Census Bureau and Indiana Business Research Center Labor force change in the state is expected to slow to less than , in this decade and will be essentially flat between and â€”a decade during which the entire baby boom cohort will have reached traditional retirement age. To help put this shift into perspective: Later, we focus on the expected trends for Indiana counties and metropolitan areas. Drivers of Labor Force Change Demographic trends and labor force participation are the primary drivers of labor force change. As such, the one-two punch of the large baby boom cohort and an ever-increasing share of women entering the workplace fueled the remarkable labor force growth between and The dramatic change in the number of births at the national level during the baby boom years can be seen in figure 3. Between and , the U. The average annual mark jumped to 4. Fertility rates have remained relatively low since, but the annual number of births has generally increased at a steady rate due to factors like boomers having their own children and immigration. In fact, the U. However, births have declined sharply since the economic downturn. The fertility rate is expressed as the number of births per 1, women aged years. As of the census, the number of Hoosiers born between and outnumber those born during the subsequent year period by nearly , In , only Hoosier cohorts born between and were as large as those from the peak of the baby boom see Figure 4. However, this increase will not be large enough to alter labor force growth dramatically. Given that the population was also climbing over this period, the increase in female LFPR translates to an increase in female workers from , to 1. Dashed lines represent projected values. Since the total LFPR calculation uses the entire population age 16 or older as its denominator, a decline in this measure was inevitable as the population aged and more boomers retired. Back in , the U. LFPR declined by 2. There is no consensus as to how much of this decline is attributable to demographics versus cyclical factors, but various analyses claim that the recession accounts for anywhere from one-third to one-half of the recent drop in LFPR. Between and , the so-called Great Migration involved the movement of black Americans from the south to new homes in the north and the west. Indiana had a net out-migration of residents during the s and s but the s featured another surge in movement to the state. New Hispanic residents to the state no doubt spurred a good portion of this inflow as the size of this population in Indiana more than doubled over the decade. Net in-migration to the state dropped to roughly 80, between and Absent a much larger than expected flow of migration into Indiana, there is no new source of labor available to offset the demographic shifts. That is why these projections indicate, for instance, that there will be no labor force growth in the state during the sâ€”a period during which the boom and bust generations will begin to find themselves on opposite sides of the traditional retirement age. Of course, these trends are not unique to Indiana. Figure 6 shows that BLS expects a similar trend in labor force change nationally. Note that BLS released these projections in â€”before the latest recession. Future growth rates for the nation may well be lower the next time BLS releases long-range projections. BLS labor force numbers for the U. Bureau of Labor Statistics, U. The LFPR for the to age group is projected to increase by 4. Census Bureau and Indiana Business Research Center LFPRs will also

edge up over this decade in most of the prime working age groups with the exception of a slight decline in the to bracket. At the other end of the spectrum, participation among younger Hoosiers dropped sharply last decade and is expected to slide further. That number fell to Due to the declining LFPRs among younger Hoosiers, the labor force in the to age group declined by 64, between and even as the population in this age group grew by 45, The youth labor force is projected to decline slightly more by before beginning to tick up again simply because of population growth see Figure 8. Census Bureau and Indiana Business Research Center The size of the labor force in the to group dropped last decade as the last half of the boomers aged out of this bracket. The numbers in this group will climb over the next three decades, averaging an increase of nearly 27, per decade. By , the entire baby boom cohort was in the to age bracket, leading to a large jump in the size of this labor force category. This group will grow a bit more in this decade and then decline after The number of Hoosiers age 65 and older in the labor force will nearly double from , to , between and before declining some after that period. Leading the way is the county Indianapolis-Carmel metro, whose labor force is projected to grow by 1 percent per year in this decade. Other metros with relatively high projected growth rates through include Lafayette 0. Each of these metros will have a lower rate of change between and

Chapter 4 : The Degree of Certainty in Population Projections â€“ Population Reference Bureau

Labor force projections, until the past few years, have been based, with few exceptions, upon the series of detailed population forecasts initiated in by P. K. Wheipton of the Scripps Foun-.

For short-term forecasts of five years or less, demographic uncertainty may be so small that traditional projections with only an expected population size rather than a predicted range are adequate. Over the long-term, however, demographic uncertainty may be so great as to overshadow changes in labor force participation or disability rates. In this case, planners need to take the degree of certainty associated with demographic projections more seriously. When population projections are made using probabilistic statistical procedures and are done by single-year age group, analysts can calculate upper and lower bounds for any age group of interest see Figure 1 and Figure 2. Uncertainty Levels Differ in Short-Term and Long-Term Projections The two population pyramids presented in Figures 1 and 2 show a example of 10 year and 50 year forecasts of the U. Each pyramid shows the lower bound of the forecast in yellow , the middle estimate in blue , and the upper bound in red. These represent, by sex and age group, a range in which the analysts, Ronald Lee and Shripad Tuljapurkar, are 67 percent certain the actual population size of each age group will fall. Shripad Tuljapurkar, Ronald Lee, and their collaborators have used these methods to project the exhaustion of combined Social Security trust funds which pay benefits to retired workers and their families, survivors of deceased workers, and disabled workers and their families. In short-term projections such as the 10 years in Figure 1, there is significant uncertainty only for the youngest age groups. Historical trends suggest that lifespan may lengthen. Over the long term, such as the 50 year projection in Figure 2, we can see both the uncertainty in predicting fertility rates and in predicting death rates at certain older ages. Knowing the Level of Uncertainty Could Influence Policy Decisions Figure 2 shows that predictions about the size of the elderly population, even in the long-term, are relatively certain. This is because projected Medicare balances also depend on assumptions about medical advances and whether they are incorporated into standard treatment. If population projections are to inform policy decisions, then uncertainty of these projections must be assessed. In some areas, greater uncertainty might lead to postponement of action. In other policy arenas such as education planning, greater uncertainty might indicate that the best polices would be those most easily changed as the future unfolds. For example, a school planner facing uncertain projections of enrollment growth might decide to rent additional space for schools rather than building or buying space. Marlene Lee is a senior policy analyst at the Population Reference Bureau. Government Printing Office, Such a determination is treated as a funding warning for Medicare. Auerbach and Ronald D. Cambridge University Press, A Message to the Public, accessed online at www. John Bongaarts and Rodolfo A.

Chapter 5 : Research & Economic Analysis | Section 12 â€“ Labor Force, Employment, and Earnings

of Industry Employment to J.S. Department of Labor on the BLS projections methods, models, and techniques. The text covers the in developing long-range.

Gross national product GNP is the final output of the economy measured from the demand side, or the output of the economy distributed among its final users. Final demand projections involve estimating the future purchases of each demand sector, by industry of origin. For the projections, the economy was disaggregated into different industries. The output of the macro model provided control totals for each final demand sector. The first step in projecting distributions of purchases for each sector was to develop data series for the purchases each made in past years. In addition, many data series were available through , providing recent trends. These historical data were used with a variety of techniques and submodels to project purchases. In the case of foreign trade, projections were based largely upon historical data. Major functional areas were considered first. These levels were then distributed to each of the different industries. All purchases were then converted to a constant price level. In the case of personal consumption, expenditures were first distributed to 82 major product categories using a consumption demand model. For each of these 82 products, a distribution pattern was used to allocate each total to its appropriate producing industries. Investment was treated as a function of the level of sales in each industry or the ratio of investment to output in each industry. Department o f Commerce, Bureau o f Economic Analysis. Educational purchases, as a total, were assumed to vary with fluctuations in the size of the school-age population. Product purchases were considered in certain cases. Purchases of ordnance were based upon assumptions about defense replacement requirements and U. In this case, the Data Resources, Inc. The prices from the model were used to project the coefficients. All of the assumptions inherent in the DRI energy model, therefore, became those used in the projected BLS energy industries. These included such things as price increases for domestic and OPEC oil, deregulation of natural gas, and the rate of development of nuclear and other sources of electric power. Coal and electricity were assumed to be more readily available through After total consumption was determined by the BLS macroeconometric model, the first step was to project consumption by major type of expenditure, such as food, housing, or medical care. The result was the personal consumption expenditure bill of goods, the largest component of final demand. The BEA estimates these products for each year and benchmarks them to new bridge tables as they become available. A consumption submodel was used to project the 82 product categories. Taylor consists of a set of 82 demand-oriented consumption functions. Relative prices are also used extensively. For these projections, the model was reestimated in dollars from to The new equations were simulated over the projected period using preliminary controls for purchases of durables, nondurables, and services from the macro model. As time and resources permitted, additional research was done for these products. Personal consumption expenditures Personal consumption expenditures PCE are the value of goods and services purchased by individuals and nonprofit institutions. Taylor, Consumer Demand in the 4 U. More specifically, new estimators were generated using the BEA data in dollars through , the latest available year at the time, and the model specifications published by Houthakker and Taylor. The equations used are given in appendix C. In addition, the original period was used to create estimators, and ex post simulations were made from to The statistical fits varied, but, for most products, there were problems of significance in some of the parameters. The ex post simulations for almost all equations produced directional biases as well as errors increasing over time, even with the correct lagged consumption value. Finally, the sum of the projected product levels was brought into balance with macro consumption totals by allocating the difference to categories according to the relative change in their value. Of those, six were add-factored for various reasons. Four estimators were respecifications of the Houthakker-Taylor model. Eleven projections came from other government or private projections. Twelve of the products had time polynomial extrapolators, and five used other extrapolators, such as population and the death rate. Bridge tables were developed by the BEA for all

input-output years. Thus, at the time these projections were prepared, data were available for , , and Each bridge table had been prepared in current dollars. Because of a lack of information, this was not possible for three areas: A bridge table for was estimated by the BLS. As a first estimate, the relationships from the bridge table were used. Where this method produced results inconsistent with other data, changes were made in the bridge relationship. Unpublished shipments data were used to extrapolate these relationships to For the projections, the bridge table was used as an initial estimate of the projected bridge table. Each of these categories was made up of many types of goods, produced by different industries. A matrix or bridge table was used to transform the product forecasts into the industries used in the projections. Imports that are competitive are now subtracted from final demand by industry. For more information, see the section o f final demand. Historical data series for each of the components of investment were developed. For residential structures, a detailed series from to was developed from data from the national income accounts. The data were then aggregated to the level of detail used in the Economic Growth industry model. These data series were developed in both current and constant dollars. The process for developing the historical equipment bill of goods series was more complicated. Each of these products can include goods produced by more than one industry. The and bridge tables prepared by BEA were aggregated to Economic Growth industry sectors and then inflated to constant dollars. These data were checked for consistency with other estimates being made, and revisions were made as necessary. In addition, capital flows tables were used to provide historical data on plant and equipment. Louis dustries which purchase it, and the relative importance of each of the industries in making up total purchases. Capital flows tables are developed for input-output years, and at the time of this study, were available for , , and , in current dollars. Using detailed bills of goods developed for along with data on investment by industry, a capital flows table for was estimated in constant dollars based on the table. Historical data for the inventory change bill of goods are available only for the input-output years. The change in business inventories is very different from the other components of investment. The relative 14 importance of any entry can change greatly from year to year. Detailed bills of goods are available only in input-output years. Initial estimates of the projected bills of goods for structures were made at the level of the most detailed historical data based on past relationships. Data from to were used to project the movement of these detailed categories into the future. Changes were made as necessary to the detailed projections until they added to the control totals. The use of a capital flows approach allowed changes in industry outputs to change the investment of the industries. Investment in equipment, like investment in plant construction, is projected by relating it to the output of the industries producing goods and services for sale to other industries and to final demand. As a result, comparing the types of investment goods required against the initial estimates of equipment types produced is a complex process. As in the case of nonresidential structures, these estimates were then used to generate initial estimates of output by industry. At this point in the projection sequence, there was no assurance that the initial estimates of types of equipment produced were consistent with the types of investment goods required by the generated outputs. The projected capital flows tables, investment-output ratios, and initial bills of goods were adjusted until they were consistent. The capital flows table allowed changes in industry output to be reflected in the investment bills of goods. Industries which had a perishable product were then adjusted to be more in line with the past levels. The initial projections were modified as necessary in later stages in the projection process. Net exports represent the value of total exports of goods and services less the value of total imports of goods and services. Unlike other sectors of final demand, historical data on foreign trade are plentiful and detailed. Instead of problems of disaggregation and estimation, foreign trade data must be compiled or aggregated into the inputoutput industry sectors. For imports, data are available by SIC-based produce codes and by special U. Data requirements after aggregation involve modification and augmentation to reflect balance-of-payments and input-output conventions. This total is then divided into two categories in the input-output system. The first category consists of all imports of final users, as well as intermediate imports which are competitive with domestic products. In previous BLS projections and in the published input-output tables of the BEA prior to , a different treatment of imports was used. Intermediate

imports which were competitive with U. See The Structure of the U. Economy in and , BLS Bulletin , for more information on this method. By subtracting the value of foreign automobiles from total demand for autos, the demand for domestic automobiles is derived. The projection of competitive imports by industry is mainly based on analysis of existing and expected shares of the domestic market. Trade agreements which may restrict imports are also taken into account.

Chapter 6 : Project MUSE - Long-Range Economic Projection, Volume 16

subprocesses, ultimate long-range assumptions provided by the Board of Trustees of the OASDI Trust Funds, data from other offices of the Social Security Administration, and data from outside the Social Security Administration (e.g., estimates of the U.S. population).

Chapter 7 : Future Workers of Indiana: Projecting the Labor Force to (November-December)

Click to enlarge the chart Annual Growth Rate of the Population, Labor Force, and Employment, by Decade, to Projected Click to enlarge the chart Projected Percent Change in Industry Employment,