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Chapter 1 : Methodology used to produce the national population projections - Office for National Statistics

National population projections provide an indication of the future size and age structure of the UK and its constituent countries based on a set of assumptions of future fertility, mortality and migration.

November Next update: Will be replaced by a future projection Will be added to StatsWales: Will be replaced by a future projection Source: This dataset provides the Wales data from that source by gender, single year of age and each year from the base year of , through the projection period to The national population estimates have been used as the base for these national projections. The projected population is for 30 June each year. The base population estimates are based on the usually resident population. Usual residents away from home temporarily are included, but visitors are excluded. Students are counted at their term-time address. It should also be noted that the UN definition of an international migrant is used - those changing country of residence for a period of at least 12 months. Short-term migrants eg migrant workers from Eastern European countries are not counted in the population estimates and hence are not included in the population projections. Population projections provide estimates of the size of the future population, and are based on assumptions about births, deaths and migration. The assumptions are based on past trends. Projections only indicate what may happen should the recent trends continue. Projections done in this way do not make allowances for the effects of local or central government policies on future population levels, distribution and change. Data are rounded independently to the nearest whole number and may not add exactly. Note that the projections become increasingly uncertain the further we try to look into the future. Also note that these figures differ from the Wales data in the national population projections produced by the Office for National Statistics because the key aim of the local authority population projections is to produce robust local authority population projections for Wales, which reflect local trends in recent years while the main purpose of the national projections is to produce robust population projections for Wales which reflect national trends in recent years. The national projections and the local authority projections are different for two main reasons: The methodology used to produce assumptions in the local authority projections are different to those used in the national projections. Some of these are due to slightly different data sources. Also, although one set of assumptions may fit well for a national trend, using similar assumptions may not always produce feasible results for all local authority areas because of the different nature and trends between local authorities. The geographical level for which the assumptions are based and applied is also important. For example, it is not appropriate to sum local rates eg fertility to derive a national rate, and therefore a model operating at different geographic levels but using rates will produce different results for the different geographic levels. For further information please see:

Chapter 2 : National Population Projections - calendrierdelascience.com

National Population Projections: based reference volume, series PP2. National population projections provide an indication of the future size and age structure of the UK and its constituent countries based on a set of assumptions of future fertility, mortality and migration, including a number of variant projections based on alternative scenarios.

Volume 57 - Number 4 - Winter D. Trends in Population Growth and Size Studies on changes over time in population size and the bases of their estimation. Studies that are concerned primarily with the methodology of trends, estimations, and projections are classified under this heading and cross-referenced to N. Methods of Research and Analysis Including Models. Studies dealing with two or more of the topics listed in this division are coded under D. Current Rates and Estimates and cross-referenced where appropriate. Past Trends Studies of observed data on population growth in the past and its components. Includes studies that are primarily concerned with population trends up to and including World War II. Loss of population in the USSR. The author discusses the loss of population that occurred in the Soviet Union during collectivization and famine in the period and, to a certain degree, during the Civil War and World War II. Chalidze Publications, Benson, VT The population of Egypt in the nineteenth century. Asian and African Studies, Vol. The author traces the demographic development of Egypt from to He critically evaluates the census data from that period, develops population estimates and growth rates, and discusses demographic patterns for each half of the century. The demographic transition is described, with references to the eradication of the plague and smallpox and to the formation of new urban centers. The effect of European settlement is also discussed. Princeton University Library SY. A simulation of the sixteenth-century population collapse in the Basin of Mexico. Annals of the Association of American Geographers, Vol. A system dynamics computer simulation is applied to an analysis of the population dynamics of the Mexican Basin in the sixteenth century. The model simulates the demographic response of the Amerindian population to the web of causal factors that affected it, including its demographic, epidemiological, cultural, social, and economic aspects. Princeton University Library PR. Current Rates and Estimates Studies of censal and other estimates based on current data, together with the relevant methodological studies. Includes studies from World War II up to the present day. The population of Colombia according to the census. This is an evaluation report on the accuracy of the census of Colombia. The study is primarily based on the findings of a post-census survey conducted in Data are presented on population by age and sex, by zone and region, projections up to , and population of municipalities. New York Public Library. One billion and counting. China Business Review, Vol. Some preliminary results from the census of China are reviewed. The author also discusses some problem areas, such as the unexpectedly high rate of population growth reported, the imbalance in the sex ratio at the expense of females, and the floating or migrant population. Princeton University Library PF. Statistics Canada Ottawa, Canada. Postcensal annual estimates of population by marital status, age, sex and components of growth for Canada, provinces and territories, June 1, Population estimates are presented for Canada in by age, sex, and marital status. The estimates are provided for the whole country, provinces, and territories and are based on the census. Total error in PES estimates of population. Journal of the American Statistical Association, Vol. We apply the methodology to the dress rehearsal census of St. Louis and east-central Missouri and we discuss its applicability to the [U. The methodology is based on decompositions of the total or net error into components, such as sampling error, matching error, and other nonsampling errors. Improved estimates are anticipated for Ericksen and Joseph B. Wachter and Terence P. Princeton University Library SM. Economic and Political Weekly, Vol. This article summarizes an official publication issued in March , and contains the first results of the census of India. It presents data on population size and growth by state and Union territory, the sex ratio, literacy, urban population, and variations in population among states and Union territories. Registrar General Edinburgh, Scotland. Mid population estimates, Scotland. Some relevant historical data and a table on population density are also presented. Projections and Predictions Studies of both long-term and short-term future trends and studies on the appropriate methodology. Projections of the Uruguayan population. Population projections are presented for Uruguay up to the year The basic projections are provided for

five-year intervals by age and sex. The authors also attempt to project changes in the urban and rural population by age and sex for the same time period. Projecting household size using truncated discrete distributions. The author develops projections of household size for Germany up to the year The results are surprisingly good compared with the standard methods for forecasting household size For projecting the development of the German private households the appropriate distribution is chosen with analytical methods out of the class of Poisson distributions and negative binomial distributions The results will be compared with projections obtained by the headship rate method as well as with those achieved by studies using micro-analytical or macro-analytical [approaches]. Bureau de la Statistique du Quebec Quebec, Canada. Demographic prospects for Quebec province and its regions, Future demographic prospects for the Canadian province of Quebec are analyzed up to the year Ten alternative scenarios are considered, according to various assumptions concerning fertility, mortality, and migration. The projections are presented separately by age and sex, as well as by region. Population projections based on official data to the year are presented for Colombia, including figures from the census. The projections are presented by age and sex at five-year intervals from to Projected changes in demographic indicators are also included, as well as data on sex ratios, fertility rates, and the school-age population. Abbreviated life tables are also provided by sex. The city and district of Porto to the year Implications for regional and city planning are assessed, and several projections to the year are presented. Population forecasts for the Netherlands during the s: An evaluation of the accuracy of the seven national population forecasts produced by the Netherlands Central Bureau of Statistics during the s is presented. The number of live births in particular was forecasted better in the last decade. Regarding fertility of subsequent generations of women it was rightly assumed that: Other assumptions made during the s that turned out to be right were: Uncertainty variants in population forecasts for the Netherlands. Variants are obtained by using a deterministic model. Hence the probability that the interval between the variants [covers] the true future values is unknown. Under reasonable assumptions a statistical confidence interval for total population size can be derived. The basic assumption is that the forecast errors of population growth are serially correlated. If a first-order autoregressive model is estimated on the basis of all population forecasts published Box , AZ Voorburg, Netherlands. The future of the Italians: Edizioni della Fondazione Giovanni Agnelli: The authors discuss future demographic trends in Italy and their likely socioeconomic consequences. Chapters are included on the implications of these trends for the labor force, education, health, and the political situation. The prospects for the various regions of the country are examined separately in a statistical appendix. Institute of Population Problems Tokyo, Japan. Selected demographic indicators from the United Nations population projections as assessed in A selection of data from the U. In addition to information on population by age and sex, total fertility rates, and life expectancy, the publication provides data not included in the U. Population projections for Luxembourg are given up to the year Three alternative projections are provided and are made separately for the Luxembourg and foreign resident population. Differences in the age distributions of the alternative projections are analyzed.

Chapter 3 : uk national population projections - Search - Office for National Statistics

Compendium: National Population Projections: based reference volume, series PP2 National population projections provide an indication of the future size and age structure of the UK and its constituent countries based on a set of assumptions of future fertility, mortality and migration, including a number of variant projections based on alternative scenarios.

Office for National Statistics Table notes: In the TFR fell slightly to 1. There was some variation between UK countries during and , with a stabilisation then strong recovery in England, while in Scotland the TFR fell in both years, and Wales and Northern Ireland both saw small recoveries in Fertility rates among women in their thirties and forties in the UK have continued to rise at a fast pace since the turn of the century, reaching levels last seen during the s baby boom. This increasing fertility among older women continued in and Since there have also been smaller increases in fertility among women in their late twenties and a stabilisation among women in their early twenties, following declining fertility in these age groups during the s. However the increases in fertility rates for women in their twenties stalled in and The combination of trends in these two age groups has led to the rise in overall fertility over the decade, as well as further small increases in the mean age at childbirth. Apart from the recuperation in fertility at older ages by women born in the late s and s mentioned above, other factors that could be associated with recent increases in period fertility include the increasing proportion of women of childbearing age born outside the UK who have above average fertility , and the possible role of changes relating to support for families such as tax credits or maternity and paternity leave â€" see references 6 ,7,8 for further discussion of these factors. These increases in period fertility have started to have an impact on the family sizes achieved to date by cohorts of women who have not yet completed their fertility. This reflects the continued increases in the fertility of women in their thirties. In addition, women born in have achieved a slightly larger family on average by their 30th birthday than women born in This represents a marked difference from the pattern seen previously, where successive cohorts achieved slightly lower fertility at each age than their predecessors. Future fertility levels For the based projections, the fertility assumptions were raised for the first time since the s, with the long-term level of completed family size for the UK increasing from 1. For the based projections, the long-term assumptions remained unchanged following a review of the available evidence, except in Scotland where the assumption was raised slightly. The review by ONS prior to the based projections proposed keeping the long-term assumptions stable, given the uncertainty around the likely direction of fertility change in both the short- and long-term. This recommendation was accepted in line with the arguments detailed below. This suggests that experts do not believe fertility is likely to maintain its current period level in the long-term. When considering likely factors affecting future fertility, some could put downward pressure on fertility levels, for example continued increases in female employment and higher education that raise the opportunity costs of childbearing, and changes in socio-economic conditions such as housing cost and availability. Others factors could put upward pressure on fertility in the long-term; these include the continuing in-migration of women from countries with higher fertility than the UK and perhaps the increased ability of women to realise their fertility intentions, for example by more flexible working patterns for parents. The uncertainty inherent in future trends in these factors, particularly in the prevailing economic and social climate, makes it difficult to judge whether those having an upward or downward influence will have the stronger influence on fertility in the long-term. In order to decide on plausible assumptions for long-term fertility, the completed family sizes resulting from different scenarios for possible trends in fertility at different ages were examined. As agreed in consultation with key users, the final projection for the UK is broadly based on a long-term scenario where fertility rates for women in their twenties are somewhat lower than in , fertility rates for women in their thirties are slightly lower than levels, but fertility among women aged 40 and over is slightly higher than in â€" this long-term pattern is achieved by the late s and stabilises from then on. Broadly similar scenarios were used in each of the four UK countries, with the assumed long-term total family sizes kept in line with recent country differentials in fertility. For the short-term, fertility projections have been based around the latest trends in

age-specific fertility. For example, a small increase in the TFR up to has been projected for England, which experienced the largest increase in the TFR from to In contrast the TFR in Scotland is not projected to increase further in the short-term. These differing short-term trends are incorporated to ensure the projected path from current fertility to the long-term level is plausible. However short-term changes in period fertility, such as those related to the economic downturn in are not expected to have a large impact on completed family size in the long-term unless they continue for a longer period. The effect of changes in the timing of childbearing on measuring fertility in England and Wales. Smallwood S and Chamberlain J Replacement level fertility, what has it been and what does it mean? New estimates of trends in births by birth order in England and Wales. For application in population projections, see also Smallwood S Fertility assumptions for the based national population projections. True birth order estimates are based on the incomplete information on previous children collected at birth registration combined with information from the General Household Survey. Information on family size can be found in Cohort Fertility: Have women born outside the UK driven the rise in UK births since ? Is there still reason to worry?

Chapter 4 : National Population Projections - Series PP2

National population projections by age and sex for the UK and constituent countries. Includes information on the principal (main) and variant (alternative scenario) projections for each country together with details of the fertility, mortality and migration assumptions on which they are based.

Download as PDF 1. Overview The NPPs are made for successive years using a standard demographic cohort component method. This is the method that is also used to produce national population estimates. Summary of cohort component method Population year x population at the beginning of the year plus births between yrs x and y plus births in year minus deaths between yrs x and y minus deaths in year plus net-migrants between yrs x and y plus or minus adjustment for migrants equals population year y gives population at the end of the year For each age, the starting population plus net inward migrants less the number of deaths produces the number in the population, 1 year older, at the end of the year. To this has to be added survivors of those born during the year. Age is defined as completed years at the last birthday. Migration, deaths and births are all assumed to occur evenly throughout the year and are known as components of change. To make a projection, the mid-year population estimates from each country are used as the starting population. The numbers of births, deaths and migrants are calculated using assumptions of future levels of fertility, mortality and migration, considered to be the best that could be made at the time they are adopted. They are determined by a mixture of trend observation and extrapolation, and consideration of expert opinion, with actual data included in the calculation for the first year of the projection. Variant projections are also calculated using the cohort component method. They are based on alternative assumptions of future fertility, mortality and international migration to those used in the principal projection and are intended to provide users with an indication of the uncertainty surrounding projections. Details about the variant projections and associated assumptions are published alongside the results and in the NPP reference volume Series PP2: In general, the projections are computed for each of the constituent countries of the UK and the results are added together to produce projections for England and Wales, Great Britain and the UK. Base population The starting point for the projections is the base population. Details on the population estimates methodology are available. Births The number of births in the year is calculated by multiplying the average number of women at each single year of age during the year taken as the mean of the populations at that age at the beginning and end of the year by the fertility rate applicable to them during that year. The total number of births in a year is assumed to be divided between the sexes in the ratio of males to females, in line with recently observed trends. The number of infants aged 0 at the end of the year is calculated by taking the projected number of births, deducting the number of deaths found by applying the special infant mortality rate and adding half the number of net migrants aged 0 last birthday. Details about the fertility assumptions and how they are constructed are published in a report alongside the data release and in the NPP reference volume Series PP2: Deaths The number of deaths in a year is obtained by adding half of the net inward migrants at each age to the number in the population at the beginning of the year and applying the mortality rate qx known as the initial mortality rate, or the probability of dying. Details about the mortality assumptions and how they are constructed are published in a report alongside the data release and in the NPPs reference volume Series PP2: Migration In the national population projections, assumptions are made regarding future levels of migration to or from the UK and its constituent countries. This is broken down into international migration the movement of people to or from countries outside the UK and cross border migration the movement of people between countries of the UK. In response to this review changes were implemented to the way in which migration assumptions were set. In the based projections, in addition to a general streamlining of the methodology, there was a move to modelling migration inflows and outflows separately rather than net migration. In the based projections, a new SAS-based system was developed enabling the setting and applying of the cross border intra-UK migration assumptions as rates rather than fixed numbers of migrants. A number of data sources are used to derive the migration assumptions. Estimates of flows of asylum seekers, most of which are not captured by the IPS, are provided by the Home Office. Assumptions of future international migration are derived from modelling

recent trends. As trends can be fairly volatile, a short-term assumption is implemented for the first few years of the projection, after which constant annual migration flows are adopted for the longer term. Assumptions of future cross border rates are calculated as an average of the last 5 years of actual data. An adjustment is applied to the rates to take the population of the country of destination into account, ensuring that net migration levels between countries of the UK are stabilised over the course of the projection. Variant projections In addition to the principal projection, variant projections are produced using the same model and base population as the principal, but different sets of fertility, mortality and migration assumptions. These variant assumptions are intended as plausible alternatives to the principal assumptions and not to represent upper or lower limits for future demographic behaviour. In the based population projections, 16 additional variants were produced. Details about the variants and how are they are constructed are published in a report alongside the data release and in the national population projections reference volume Series 2:

Chapter 5 : Population Index - Volume 57 - Number 4

The OFFICE FOR NATIONAL STATISTICS (ONS) is the largest producer of official statistics to government. ONS is responsible for producing a wide range of key economic and social statistics which are used by policy makers across government to create evidence-based policies and monitor performance against them.

Received Apr 19; Accepted Jan Abstract Background This study used a cross sectional survey to examine the effect of gender, age, and geographical location on the population prevalence of renal replacement therapy RRT provision in Wales. Methods Physicians in renal centres in Wales and in adjacent areas of England were asked to undertake a census of patients on renal replacement therapy on 30 June using an agreed protocol. Data were collated and analysed in anonymous form. Results patients were on RRT in Wales at the census date. Median age of patients on RRT was 56 years, peritoneal dialysis 58 years, haemodialysis 66 years and transplantation 50 years. The three treatment modalities had significantly different age-specific peak prevalence rates and distributions. RRT age-specific prevalence rates peaked at around 70 years pmp , transplantation at around 60 years pmp , haemodialysis at around 80 years pmp and peritoneal dialysis did not have a clear peak prevalence rate. Age-specific incidence of RRT peaked at a rate of pmp at 79 years, as did incidence rates for haemodialysis, which peaked at the same age. Age had less effect on the initiation of peritoneal dialysis, which had a broad plateau between the early fifties and late seventies. Kidney transplantation rates were highest in the early fifties but were markedly absent in old age. Conclusion Differences in the provision of RRT are evident, particularly in the very elderly, where the gender difference for haemodialysis is particularly marked. The study illustrates that grouping patients over 75 years into a single age-band may mask significant diversity within this age group. Significant numbers of very elderly patients who are currently not receiving RRT may wish to receive RRT as the elderly population increases, and as technology improves survival and quality of life on RRT. Background Since the introduction of renal replacement therapy RRT in the UK in [1], its use has risen steadily. As survival has improved, there has been an increasing willingness to offer dialysis to a wider range of patients including older patients. This has resulted in rising annual incidence acceptance and prevalence rates. In the s, dialysis was rarely offered to patients over 65 years[2]. The acceptance rate for RRT has steadily risen from around 22 per million population pmp [3] in the UK population in , to pmp in Wales in [4]. The prevalence rate has also risen, in England and Wales, from around pmp [5] in to over pmp [4] in The continuing rise in demand for RRT has imposed a huge strain on resources in renal services [6]. There have been recurrent demands for yet more investment[7] and some surprise that demand has not reached a plateau. Geographical boundaries in Wales have changed and there was concern to ensure that further investment addressed, rather than increased, inequalities in gender, age and geographical location. Some concern had also been expressed regarding the reliability and independence of available data. This study attempted to address and explain some of the issues behind the ongoing requirement for further investment. A number of factors underlie the rising demand in RRT. Technological advances have encouraged the offering of RRT to older patients with greater co-morbidity. Technological advances have also improved survival, increasing the incidence and prevalence of patients on RRT. A rapidly aging population, has, and will increasingly, exacerbate the effect of the above factors, as population predictions suggest that the number of people aged over 60 years will rise by around 65 per cent over the next 50 years. Similarly, the number of people aged over 75 years is expected to double, and the number of people aged 90 years and over is expected to more than triple [8]. Separate analysis of data on RRT prevalence or incidence in the very elderly has historically been scarce and the use of summary measures of RRT, encompassing wide age bands, may also have obscured the underlying shifts in the numerators and denominators in the elderly. This study has consequently used age-specific rates, which have a number of advantages over age-standardised rates as they are unaffected by differences in demography [9]. This allows the separating out of age related factors and factors associated with changes in the provision demand and supply of RRT. Age-standardised rates can only be compared with other age-standardised rates using the same age-standardised population. For example, age-standardised rates for the UK population cannot be compared

with age-standardised rates for the European population or the North American population. In contrast, age specific rates can be compared between any two populations without being affected by different population pyramids in the different populations [10 , 11]. Age-specific rates have advantages over age-standardised rates, particularly for the oldest age band in any analysis. For example, two identical age-standardised rates for individuals "over 75 years" could represent two very different populations. One population where all the population in this age-band were aged 75â€”80 years i. Detailed differences within the age-band "over 75 years" are very relevant to the cost of providing RRT, given the demographic shift occurring in the western world. The cost of a patient aged years on RRT is likely to differ from the cost of treating a patient aged 75 years because of general frailty and co-morbidity. A doubling of the number of patients on RRT over, say 80 years or over 90 years will have a major impact on service provision as these patients are frail and have multiple co-morbidities. However, because the very elderly make up only a small proportion of the population, such a rise in RRT would only result in a small rise in the overall age-standardised RRT rate for "the over 75 years". The additional workload for the service is consequently masked. The similar generation of age-specific rates in other countries or populations would facilitate debate on the emerging question as to the true level of unmet need for RRT in the ninth and tenth decades of life. Other potential inequalities in RRT provision are also important to consider. This study has therefore examined the effect of gender, geographical location and modality of RRT on RRT prevalence rates. Insufficient numbers were available to assess the effect of these factors on incidence rates. This date was chosen, as it is the middle day of the year and population projections are calculated for that day of the year. A protocol was developed with input from renal physicians and circulated to previously agreed contacts in all renal centres in Wales and those in neighbouring areas in England used to treat Welsh patients. Data gathered included modality of RRT on that date, postcode, date of birth, gender and an indicator of whether the patient had first started RRT on or after 1 July To comply with data protection legislation, no names or other personal identifiers were collected. The data were cleaned by comparing all postcodes with a database of all current and past postcodes in Wales and then removing patients with non-Welsh postcodes. Patients with missing or invalid postcodes or dates of birth were checked with the provider Trust. Data sets were combined in a secure Microsoft Sequel Server database. Duplicate entries were identified as those where the date of birth, gender and postcode were identical. The number of deceased patients in the collated data set was estimated to ensure that "ghost" patients would not unduly inflate our RRT rates. The study was conducted in conformity with the requirements of the Declaration of Helsinki. Advice was sought from relevant experts to ensure compliance with Data Protection requirements. This view was supported by Health Commission Wales, an executive agency of the Welsh Assembly Government, who commissioned the study. To clean the data set further, possible entries representing deceased patients were identified by comparing date of birth, gender and postcode in our data set against the Welsh NHS Administrative Register AR held by Health Solution Wales. This comparison was made separately for patients treated by Welsh NHS Trusts and for one English Trust where there was concern that there might be a significant number of deceased patients. However, entries potentially representing deceased patients could not be removed from the dataset as the matching process could suggest, but not confirm, that a particular matching entry might represent a deceased patient. Our methodology was designed to estimate the potential size of this problem without having access to NHS numbers and to determine whether the numbers involved were sufficiently small as to be ignored in our calculation of RRT rates. Denominator data were obtained from mid-year estimates of the population of Wales in by Local Health Board calculated by the Office of National Statistics for each one-year age band from the age of one to 89 years. For the one-year age bands between 90 and 99 years data from the census was used, as mid-year estimates are not available for ages over 89 years. No patients with an age of over years were identified in the database and RRT rates for years and over were consequently set to zero. Rates pmp were calculated for each one-year age band for the three modalities of RRT, i. Moving averages of 3, 5, 7, 9, 11, 13 and 15 years were explored using an equal number of years above and below the age in question. An year moving average was identified as providing the best balance between retention of definition of changing features of the graph, minimising lags in the peaks and troughs in the graph, and yet smoothing spikes in the data. Data for some graphs were truncated below 18 yrs and above

90 years because of numerators of fewer than 5 cases in some of the individual one-year age bands. An year moving average was also applied to this data as described above. Postcodes were converted into a grid reference and recorded as an Easting and a Northing. This allowed the calculation of acceptance and prevalence rates by LHB. The median age for patients on RRT was 56 years, peritoneal dialysis 58 years, haemodialysis 66 years and transplantation 50 years.

Chapter 6 : National Population Projections - Office for National Statistics

This report contains details and results of the Government Actuary's based population projections for the United Kingdom and constituent countries, and explains the methodology and assumptions used.

Chapter 7 : Chapter 3: Fertility, based NPP Reference Volume - ONS

National Population Projections based: Series PP2 No. 25 by NA NA (Author) Be the first to review this item.