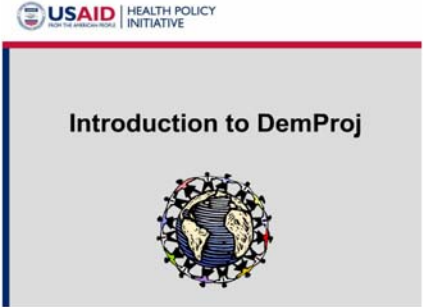



Part 2 Handout

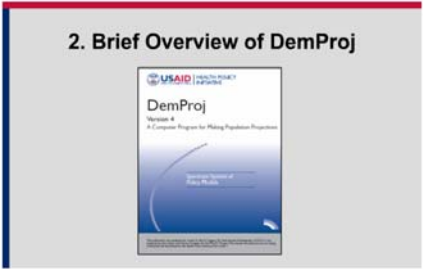
Introduction to DemProj

Slides	Slide Content	Slide Captions
	<p>Introduction to DemProj</p>	<p>Now that we have a basic understanding of some concepts and why population projections are important, we are ready for an introduction to the DemProj model. My name is John Stover and I will be the instructor for the second part of this course.</p>
<p>Objectives</p> <p>The objectives of Part 2 of the course are to:</p> <ul style="list-style-type: none"> ▪ Illustrate how the Spectrum system of models can be used for development planning ▪ Teach participants how to make population projections using the DemProj model ▪ Explain the inputs and outputs of a population projection ▪ Help participants interpret population projections from DemProj 	<p>Objectives The objectives of Part 2 of the course are to:</p> <ul style="list-style-type: none"> ▪ Illustrate how the Spectrum system of models can be used for development planning ▪ Teach participants how to make population projections using the DemProj model ▪ Explain the inputs and outputs of a population projection ▪ Help participants interpret population projections from DemProj 	<p>The objectives of this section of the course are to: Illustrate how the Spectrum system of models can be used for development planning. Teach participants how to make population projections using a function called “EasyProj” in DemProj Explain the inputs and outputs of a population projection. Help participants interpret population projections from DemProj.</p>
<p>Outline</p> <ul style="list-style-type: none"> ▪ Overview of Spectrum ▪ Overview of DemProj ▪ Making population projections in DemProj 	<p>Outline</p> <ul style="list-style-type: none"> ▪ Overview of Spectrum ▪ Overview of DemProj ▪ Making population projections in DemProj 	<p>In this presentation I will give an overview of Spectrum and a brief overview of DemProj. I will then walk you through the DemProj model and you will see how to construct a population projection using the EasyProj function.</p>

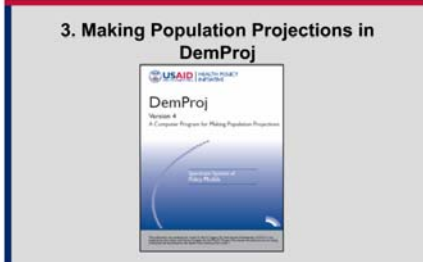
	<p>1. Overview of Spectrum</p>	<p>The name Spectrum derives from the fact that it contains modules that look at a wide range, or spectrum, of reproductive health issues.</p>
<p>What is Spectrum?</p> <ul style="list-style-type: none"> ▪ An integrated package of policy models, including: <ul style="list-style-type: none"> • Demography (DemProj) • Family Planning (FamPlan) • Benefit-Cost (BenCost) • AIDS (AIDS Impact Model – AIM) • Socioeconomic Impacts of High Fertility and Population Growth (RAPID) • Adolescent reproductive health (NewGen) • Prevention of mother-to-child transmission (PMTCT) • Resource Allocation (GOALS/ Allocate/ Safe Motherhood) 	<p>What is Spectrum? An integrated package of policy models, including:</p> <ul style="list-style-type: none"> ▪ Demography (DemProj) ▪ Family Planning (FamPlan) ▪ Benefit-Cost (BenCost) ▪ AIDS (AIDS Impact Model – AIM) ▪ Socioeconomic Impacts of High Fertility and Population Growth (RAPID) ▪ Adolescent reproductive health (NewGen) ▪ Prevention of mother-to-child transmission (PMTCT) ▪ Resource Allocation (GOALS/ Allocate/ Safe Motherhood) 	<p>Spectrum is a Windows-based system of integrated policy models. Under the predecessor projects to the USAID Health Policy Initiative, a number of computer models were developed to determine the future consequences of today’s development programs and policies. The Spectrum Policy Modeling System consolidates a number of models into an integrated package. This package is constantly being updated and includes models that examine: Demography (DemProj), Family Planning (FamPlan), the costs and benefits of family planning programs (BenCost), AIDS (AIDS Impact Model – AIM), Socioeconomic Impacts of High Fertility and Population Growth (RAPID), Adolescent reproductive health (NewGen), Prevention of mother-to-child transmission (PMTCT), Resource Allocation (GOALS, Allocate, Safe Motherhood). Each component has a similarly functioning interface that is easy to learn and use. With little guidance, anyone who has a basic familiarity with Windows software will be able to navigate the models to create population projections and to estimate resource and infrastructure requirements. This section will deal with DemProj. For more information about the other models please consult the manuals at the Healthy Policy Initiative website. The manuals contain instructions for users and equations for those who want to know exactly how the underlying calculations are computed.</p>

<p>Why Use Policy Models?</p> <ul style="list-style-type: none"> ▪ To stimulate policy dialogue ▪ To provide a framework for understanding issues and evaluating options ▪ To help stakeholders set goals ▪ To facilitate program planning and decision-making 	<p>Why Use Policy Models?</p> <ul style="list-style-type: none"> ▪ To stimulate policy dialogue ▪ To provide a framework for understanding issues and evaluating options ▪ To help stakeholders set goals ▪ To facilitate program planning and decision-making 	<p>Policy models can be used in many ways. First and foremost, a policy model can stimulate policy dialogue. Models provide a framework that helps busy policymakers understand complex issues and evaluate options. These policy models can guide goal setting exercises and can facilitate program planning and decisionmaking.</p>
<p>Policy Models Help Answer “What if” Questions</p> <p>For example:</p> <ul style="list-style-type: none"> ▪ What would the population look like in 2020 if CPR increased by 1% every year between 2006 and 2020? ▪ What would the prevalence of HIV look like in 2010 if condom use increased to 50%? 	<p>Policy Models Help Answer “What if” Questions</p> <p>For example:</p> <ul style="list-style-type: none"> ▪ What would the population look like in 2020 if CPR increased by 1% every year between 2006 and 2020? ▪ What would the prevalence of HIV look like in 2010 if condom use increased to 50%? 	<p>Models can help answer a number of “what if” questions. For example: What would the population look like in 2020 if the contraceptive prevalence rate (CPR) increased by 1% every year between 2006 and 2020? What would the prevalence of HIV and AIDS look like in 2010 if condom use increased to 50%? The “what if” refers to factors that can be changed or influenced by public policy.</p>
<p>Uses of Policy Models</p> <ul style="list-style-type: none"> ▪ Illustrates how variable X relates to variable Y ▪ Illustrates the impact of taking actions earlier rather than later ▪ Illustrate the costs and benefits of a course of action ▪ Recognizes inter-relatedness ▪ Ultimately helps guide decision-making 	<p>Uses of Policy Models</p> <ul style="list-style-type: none"> ▪ Illustrates how variable X relates to variable Y ▪ Illustrates the impact of taking actions earlier rather than later ▪ Illustrate the costs and benefits of a course of action ▪ Recognizes inter-relatedness ▪ Ultimately helps guide decision-making 	<p>There are a number of uses for policy models: Models help illustrate how certain variables relate to an outcome. For example, a model can illustrate how the age and sex distributions affect the growth rate of a population. The composition of a population has broad implications for education and healthcare, but also crime rates and disease transmission. Models can also show us the impact of taking actions earlier rather than later. For example, countries in which governments prioritize prevention programs for HIV earlier rather than later, will see lower prevalence rates of HIV infection among their populations relative to what prevalence would be had the government not made HIV prevention a priority until a later date. Another use of policy models is to illustrate the costs and the benefits of a course of action. For example, increasing the number of women who use IUDs</p>

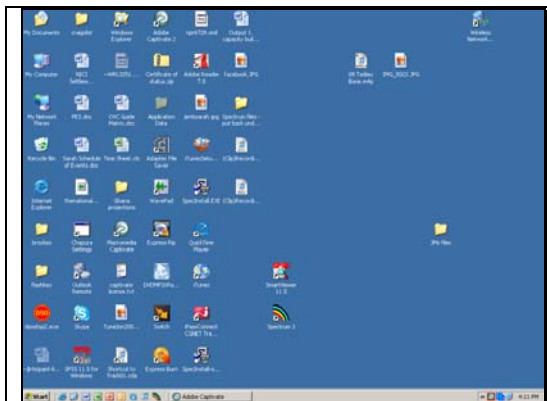
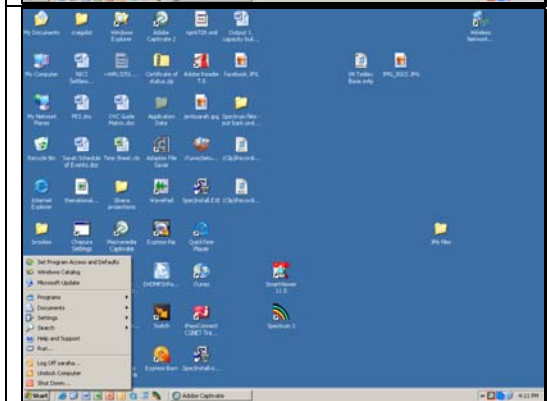
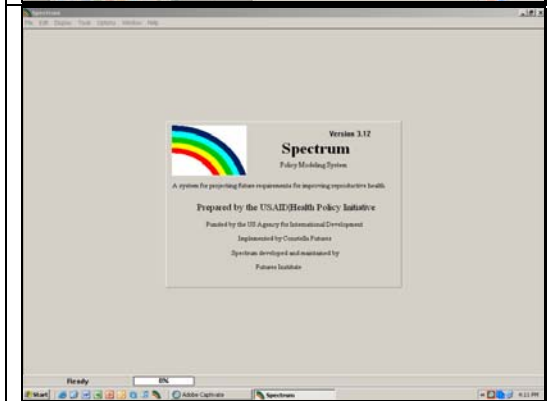
		<p>has both costs and benefits. The costs may be the time taken to train healthcare providers to insert IUDs correctly and to provide accurate information to women about potential side effects and risks. The benefits might be that women have a reliable, long-term method of birth control and increased choice and access to contraceptive methods. Models also recognize inter-relatedness. Modeling can show how making a change in one area of population dynamics (such as age of marriage) can bring about changes in a number of other areas (such as fertility rates) Ultimately, modeling can help guide decisionmaking.</p>
<p>Types of Problems</p> <ul style="list-style-type: none"> ▪ Rapid population growth ▪ Maternal mortality, morbidity ▪ Environmental degradation ▪ Poverty ▪ Unmet need for family planning ▪ HIV/AIDS epidemic ▪ Low status of women ▪ Rapid urbanization ▪ Adolescent pregnancy ▪ Low vaccination rates ▪ Infectious diseases ▪ Orphans and vulnerable children 	<p>Types of Problems</p> <ul style="list-style-type: none"> ▪ Rapid population growth ▪ Maternal mortality, morbidity ▪ Environmental degradation ▪ Poverty ▪ Unmet need for family planning ▪ HIV/AIDS epidemic ▪ Low status of women ▪ Rapid urbanization ▪ Adolescent pregnancy ▪ Low vaccination rates ▪ Infectious diseases ▪ Orphans and vulnerable children 	<p>There are a number of issues that can be addressed with Spectrum models. These include: Rapid population growth, Maternal mortality and morbidity, Environmental degradation, Poverty, Unmet need for FP, AIDS epidemic, Low status of women, Rapid urbanization, Adolescent pregnancy, Low vaccination rates, Infectious diseases, Orphans and vulnerable children, and many others.</p>
<p>Global Uses of Spectrum</p> <ul style="list-style-type: none"> ▪ Used in many countries to guide decision-making ▪ Taught by many universities and other training institutions ▪ Used by US Census Bureau in country training programs ▪ Used by UNAIDS for Global Epidemic Update 	<p>Global Uses of Spectrum</p> <ul style="list-style-type: none"> ▪ Used in many countries to guide decision-making ▪ Taught by many universities and other training institutions ▪ Used by US Census Bureau in country training programs ▪ Used by UNAIDS for Global Epidemic Update 	<p>Spectrum has been used around the world in many countries to help guide decisionmaking among program managers, policymakers and other stakeholders. It is taught by many universities and other training institutions, Spectrum is used by the US Census Bureau in its country training programs, It is also used by UNAIDS for global epidemic updates.</p>

	<p>2. Brief Overview of DemProj</p>	<p>I will now give a brief overview of DemProj before getting to the DemProj model.</p>
<p>What is DemProj?</p> <ul style="list-style-type: none"> ▪ A complete program for making population projections for countries or regions ▪ A foundation for other projections (family planning requirements, HIV/AIDS impacts) 	<p>What is DemProj?</p> <ul style="list-style-type: none"> ▪ A complete program for making population projections for countries or regions ▪ A foundation for other projections (family planning requirements, HIV/AIDS impacts) 	<p>What is Demproj? Demproj is a complete program for making population projections for countries or regions. DemProj serves as the foundation for other projections that can be made with Spectrum models, such as FamPlan, which projects family planning requirements, and the AIDS Impact Model, which projects the impact of HIV and AIDS.</p>
<p>DemProj Inputs</p> <ul style="list-style-type: none"> ▪ Base population by age and sex ▪ Total fertility rate ▪ Age distribution of fertility ▪ Sex ratio at birth ▪ Life expectancy ▪ Model life table ▪ International migration 	<p>DemProj Inputs</p> <ul style="list-style-type: none"> ▪ Base population by age and sex ▪ Total fertility rate ▪ Age distribution of fertility ▪ Sex ratio at birth ▪ Life expectancy ▪ Model life table ▪ International migration 	<p>There are a number of inputs needed for a DemProj projection. The program requires information about the population by age and sex in the base year, as well as future assumptions about the total fertility rate, the age distribution of fertility, sex ratio at birth, life expectancy at birth by sex, model life tables, and the magnitude and pattern of international migration. This information is used to project the size of the future population by age and sex for as much as 100 years into the future. Some of this information is readily available, and other data requires discussion. Future trends in data, such as the fertility rate, are influenced by many things. When using DemProj as a part of national planning, the discussion should focus on what will influence population size in the years to come. For example, a large cohort of young people moving into their reproductive years will result in</p>

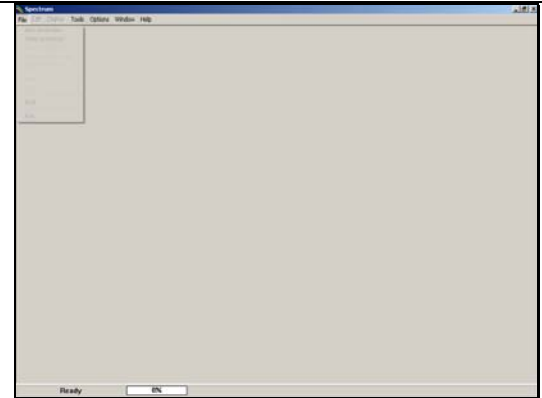
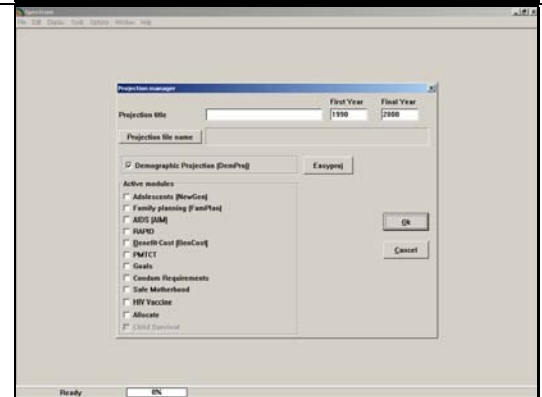
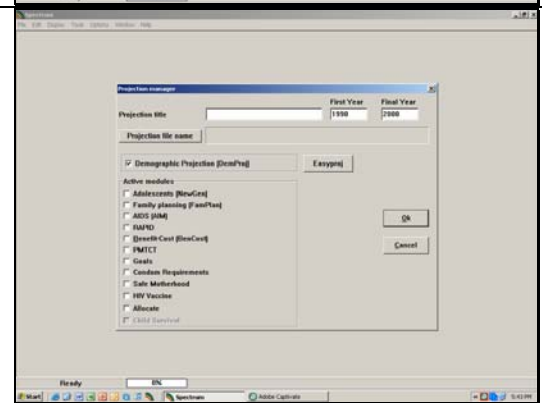
		<p>an increase in population growth rate. Policies that increase net migration or advancements in vaccines and treatments for common illnesses can also affect population growth rates.</p>
<p>Data sources</p> <ul style="list-style-type: none"> ▪ National census and fertility surveys ▪ United Nations Population Division estimates and projections ▪ US Census Bureau estimates and projections ▪ Demographic and health surveys ▪ Center for Disease Control and Prevention (CDC) Fertility surveys ▪ Population Reference Bureau's World Population Data Sheet 	<p>Data Sources</p> <ul style="list-style-type: none"> ▪ National census and fertility surveys ▪ United Nations Population Division estimates and projections ▪ US Census Bureau estimates and projections ▪ Demographic and health surveys ▪ Center for Disease Control and Prevention (CDC) Fertility surveys ▪ Population Reference Bureau's World Population Data Sheet 	<p>There are a number of outputs that we can get from DemProj. Once all the data are entered in the model, the model will be able to generate information on future population characteristics, including the projected population size, age and sex distribution, events such as births and deaths, and rates of change (such as crude birth rate and crude death rate). The following slides will give you a few visual examples of the types of information generated by the DemProj model. However, these data are used for illustrative purposes only and are not true results.</p>
<p>DemProj: Summary</p> <ul style="list-style-type: none"> ▪ Examines population groups of interest ▪ Examines changes in population distributions and size over time ▪ Allows stakeholders to compare different scenarios ▪ Provides inputs for other models 	<p>DemProj: Summary</p> <ul style="list-style-type: none"> ▪ Examines population groups of interest ▪ Examines changes in population distributions and size over time ▪ Allows stakeholders to compare different scenarios ▪ Provides inputs for other models 	<p>Data for the model such as population size, fertility, and other inputs can be collected from various sources. Some of these sources may produce more complete information than others. Basically, the more information we have, the more accurate our estimates. Complete information for population projections is available for every country in the world from the United Nations Population Division estimates and projections and the U.S. Census Bureau estimates and projections. Specific fertility rates are available from a number of fertility surveys such as Demographic and Health Surveys (DHS), Centers for Disease Control and Prevention (CDC) Fertility Surveys, and the Population Reference Bureau's World Population Data Sheet.</p>

	<p>3. Making Population Projections in DemProj</p>	<p>In summary, the DemProj model: Examines population groups of interest Examines changes in population distribution and size over time. Allows stakeholders to compare different scenarios. Provides inputs for other models.</p>
<p>Installing Spectrum</p> <ul style="list-style-type: none"> ▪ Option 1: Installing from CD-ROM <ul style="list-style-type: none"> ▪ Insert the CD-ROM into your CD-ROM drive ▪ The installation program should start automatically ▪ If the installation does not start automatically <ul style="list-style-type: none"> ▪ Select "Start" from the task bar ▪ Select "Run" from the menu ▪ In the dialogue box click on Browse, and find the file SpecInstall.exe ▪ Click "OK" 	<p>Installing Spectrum Option 1: Installing from CD-ROM</p> <ul style="list-style-type: none"> ▪ Insert the CD-ROM into your CD-ROM drive ▪ The installation program should start automatically ▪ If the installation does not start automatically <ul style="list-style-type: none"> ▪ Select "Start" from the task bar ▪ Select "Run" from the menu ▪ In the dialogue box click on Browse, and find the file SpecInstall.exe ▪ Click "OK" 	<p>You will now learn how to make a population projection in DemProj.</p>
<p>Installing Spectrum</p> <ul style="list-style-type: none"> ▪ Option 2: Downloading from Internet <ul style="list-style-type: none"> ▪ Go to www.healthpolicyinitiative.com ▪ Click on "Software" ▪ Click on "Spectrum" ▪ Click on "Spectrum download (single executable file)" ▪ Select "Save" ▪ Select a location for the file ▪ Once downloaded, click on file and follow instructions for installation 	<p>Installing Spectrum Option 2: Downloading from Internet</p> <ul style="list-style-type: none"> ▪ Go to www.healthpolicyinitiative.com ▪ Click on "Software" ▪ Click on "Spectrum" ▪ Click on "Spectrum download (single executable file)" ▪ Select "Save" ▪ Select a location for the file ▪ Once downloaded, click on file and follow instructions for installation 	<p>You can install Spectrum either by CD or downloading from the Internet. For those of you who want to install Spectrum from a CD, you will first insert the CD-ROM into your CD-ROM drive. The installation program should start automatically. If it does not, Select "Start" from the task bar, then select "Run" from the pop-up menu. In the dialogue box that appears, click on Browse, and find the file called SpecInstall.exe. Then press "Okay."</p>

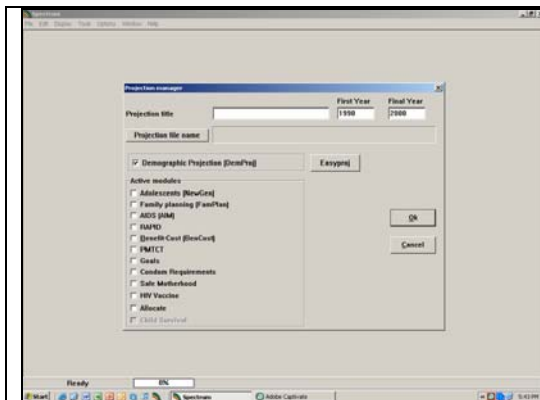
Part 2 Handout: Introduction to DemProj

	<p>All remaining slides in Part 2 contain screenshot images from the DemProj Model.</p>	<p>You can also download the installation file from the internet by going through the following steps: First go to the Health Policy Initiative site: www.healthpolicyinitiative.com. Click on the “Software” tab and then “Spectrum.” Next click on “Spectrum download” (single executable file). In the dialogue box that appears next, select “Save.” Select a location for the file. Once the file has been downloaded, click on that file and the follow the instructions for installation.</p>
		<p>Now let's look at the Spectrum program. To start Spectrum, first click on the “Start” button on the task bar,</p>
		<p>then select “Spectrum” from the program list.</p>

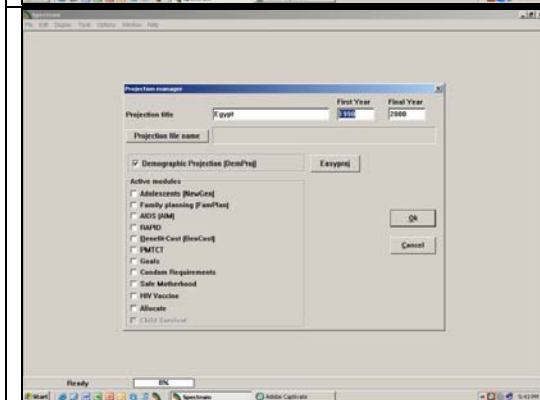
Part 2 Handout: Introduction to DemProj

		<p>You should see a screen that looks like this. We will begin by creating a new projection. First, select "File" from the top menu.</p>
		<p>Then select "New Projection" from the drop-down menu.</p>
		<p>When you do that, you will see a dialogue box for creating a new projection. The first step is to title the projection.</p>

Part 2 Handout: Introduction to DemProj

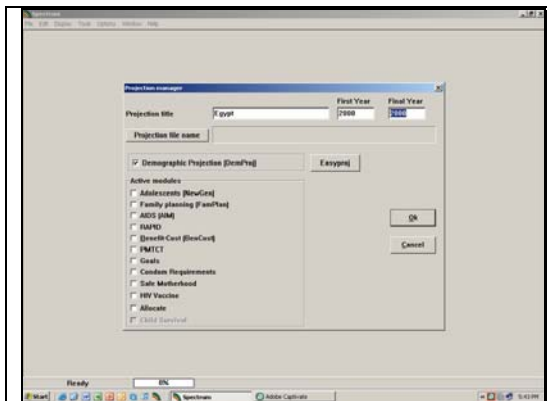
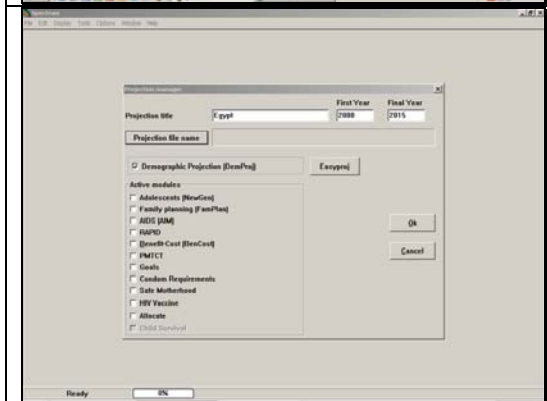
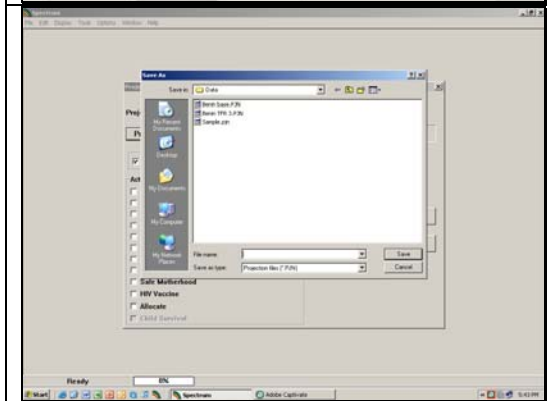


I am going to type in “Egypt” and use Egypt as the example for this projection.

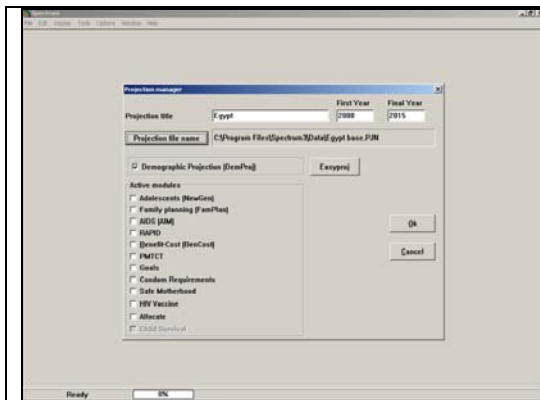


Next, we need to enter the first year of the projection. This can be any year from 1950–2050. Often, you will select a recent year for which you have good data, such as the most recent census or Demographic and Health Survey. If you are using information from a country that has a serious AIDS epidemic, you want to make the first year one year before the country’s AIDS epidemic began so that Spectrum will be calculating the entire history of the AIDS epidemic. Otherwise, you will not have enough information to correctly estimate the number of AIDS deaths, orphans, or other indicators. For Egypt, let’s set the first year at 2000. We also need to set the final year,

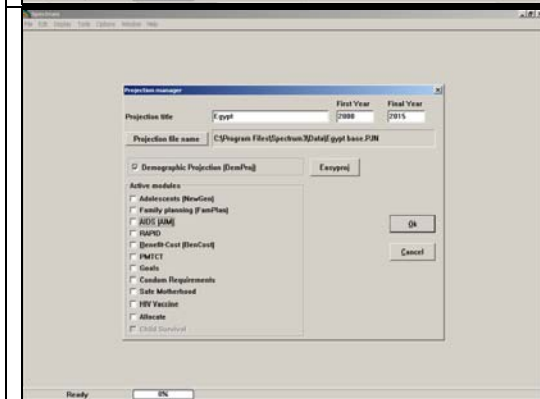
Part 2 Handout: Introduction to DemProj

		<p>which can be up anything up to 100 years. It might be five years later if you are doing a five-year development plan, or it might be the final year of your population policy. In this case, let's use 2015—the year we hope to achieve the Millennium Development Goals. Next, click on the button that says “Projection file name,”</p>
		<p>and you will see a dialogue box,</p>
		<p>asking you to provide a file name for the projection we are about to create. We are going to call this “Egypt Base” and press “Save.”</p>

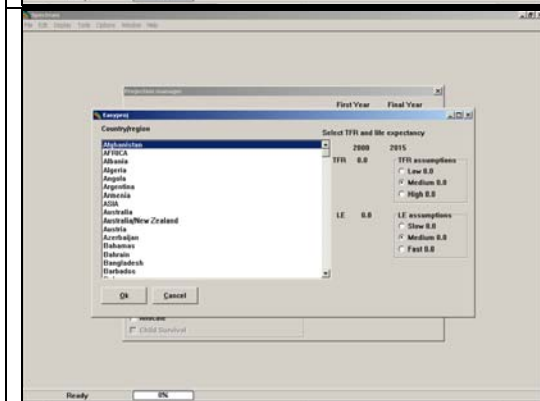
Part 2 Handout: Introduction to DemProj



Below that, we see a list of modules that are available in Spectrum. If we want to add any of these modules to our analysis—AIDS and family planning, for example—we would simply click the check box.



Or, we can click to remove the checks and just deal with DemProj, which is what we are going to do with this example. Now, if we just hit “Okay,” we would have the projection set up but no data—we would not know the population size or the fertility rates for the base year; The other option is to click the “Easyproj” button, which automatically fills the input screens with demographic data.

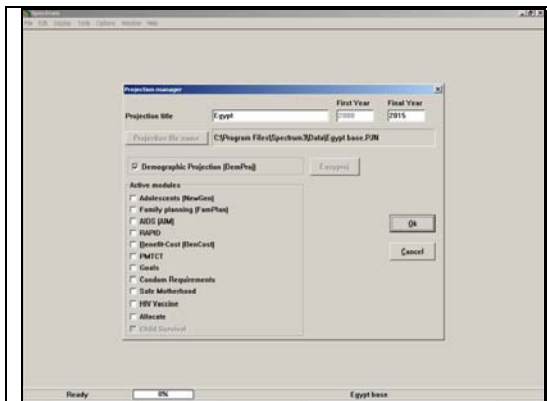
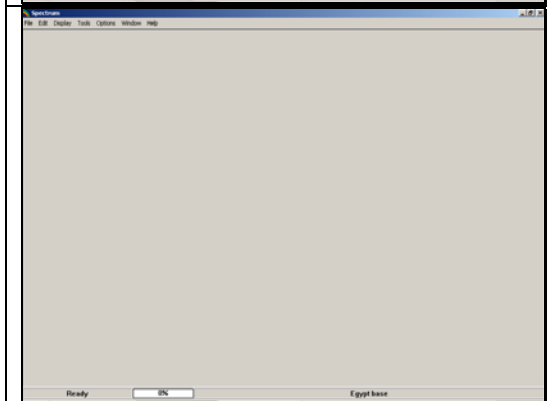
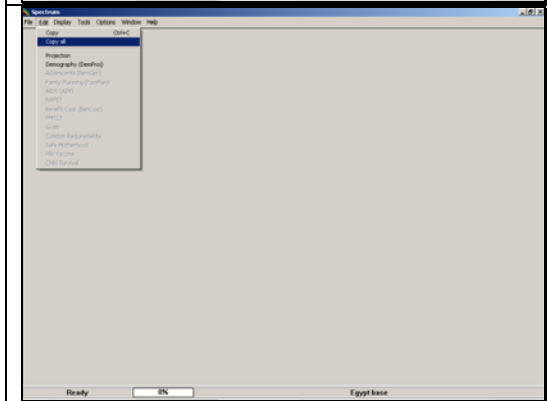


When we click the Easyproj button, we get a list of countries and regions in the world. In this case, we will scroll down and select Egypt, and then press “Okay.”

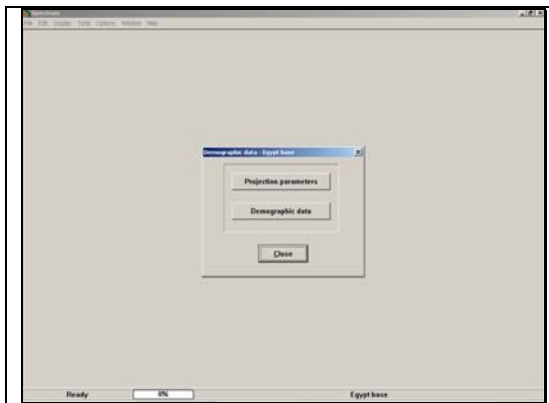
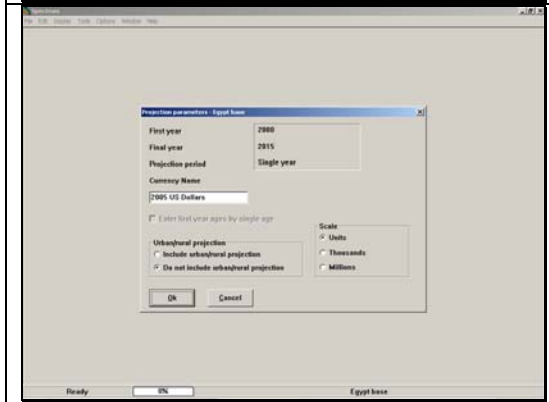
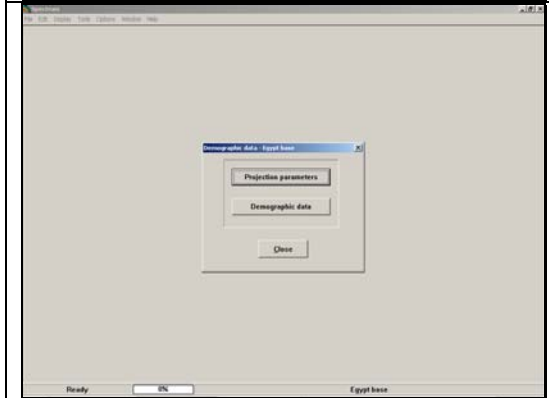
Part 2 Handout: Introduction to DemProj

		<p>When I do that, DemProj will draw from a database of demographic information prepared by the United Nations Population Division; and recognizing the first year of my projection as 2000, it will import the base year population and fertility and life expectancy data that we need to do the projection. After we press “Okay,” we will get all of our inputs</p>
		<p>and we can go directly to “Display” and examine all of our outputs. But before we do that, let’s go to the “Edit” screens and look at these inputs we have produced. We can examine the inputs by selecting “Edit”</p>
		<p>from the main menu. Notice that there are two selections under the bar here, and the first one is “Projection.” If we select that,</p>

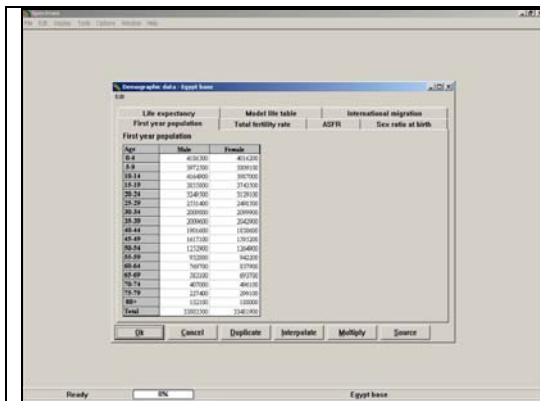
Part 2 Handout: Introduction to DemProj

		<p>it simply takes us back to the setup screen, where we can see the projection title and file name, and we can change those. Notice the first year is grayed out, meaning we cannot change it. However, we can change the final year. Click "Okay."</p>
		<p>Let's go back to "Edit."</p>
		<p>Now, let's edit the inputs for "Demography."</p>

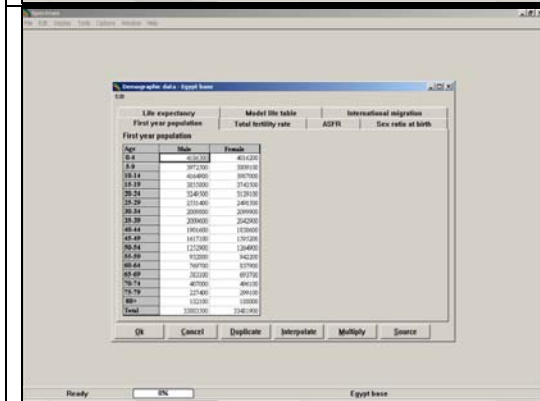
Part 2 Handout: Introduction to DemProj

		<p>The first button, "Projection Parameters,"</p>
		<p>allows you to set some global parameters for the projection. For example, you can set the currency name, which is not really used in DemProj but can be used in some of the other modules in Spectrum. You can include an "Urban/Rural Projection" if you want. In this example, we will not consider urban/rural differentials, so we will click "Do not include urban/rural projection." Finally, the "Scale" is used to set the scale of the inputs. When it is set to units, I have to enter a number such as 1,222,000 with all those digits. If this were set to "Thousands," I would enter the number as 1,222. Generally it is best to leave "Scale" set at "Units." Now click "Okay."</p>
		<p>Now let's go to the demographic data. Click on the "Demographic Data" button.</p>

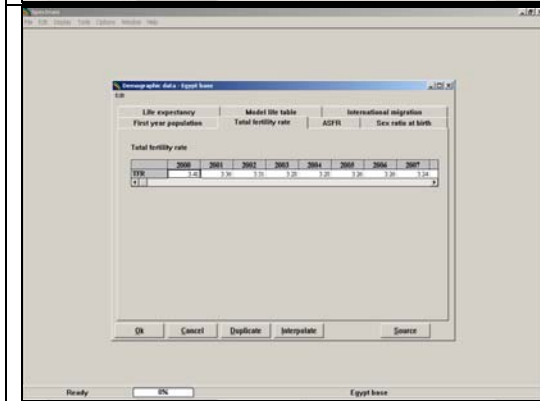
Part 2 Handout: Introduction to DemProj



You will see the main edit screen in DemProj. The tabs across the top show the different inputs that we discussed in the first section of the module. First, the tab that is selected is “First Year Population.” This is the base year population, 2000 in this case, by age and sex. This is an editor and it’s filled up now with numbers from the database prepared by the UN Population Division.

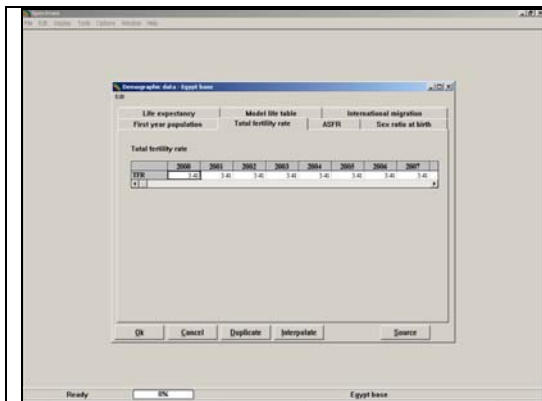


You can click on any of these cells, examine them, and change them if you want. To move to the next indicator, click on the tab on the top. If you click on the “Total Fertility Rate,”

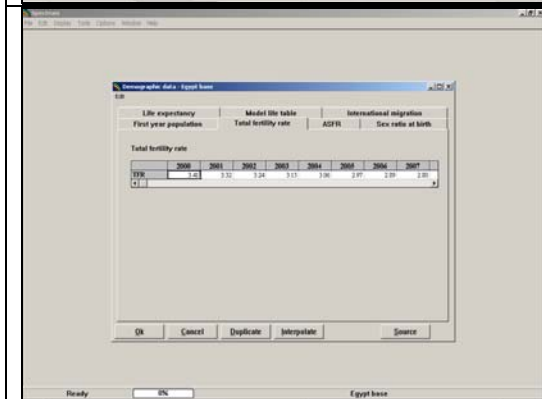


you will see a new editor that shows us the values of total fertility rate over time. For this projection, you can click inside the editor, change any numbers, and use the scroll bar to see additional years. You can also make changes to this. Suppose we wanted to see if fertility remained constant through the year 2015. One way to do that is to use the mouse and select that period of time and then click on the button labeled “Duplicate.”

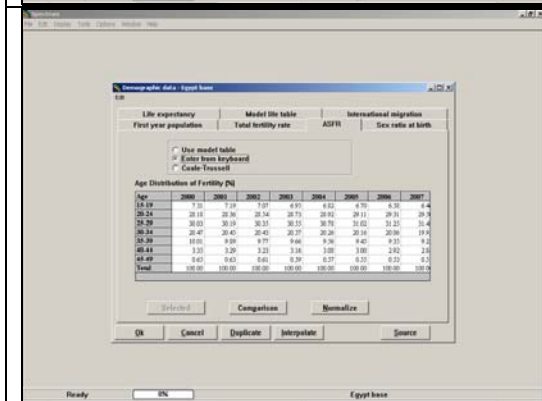
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This function copies the first value to all the other cells in the range you selected. Alternatively, we could go to the last year, 2015, and type in a new estimate. Suppose we think that fertility will drop to the replacement level 2.1 by 2015. So, with that figure now in 2015,

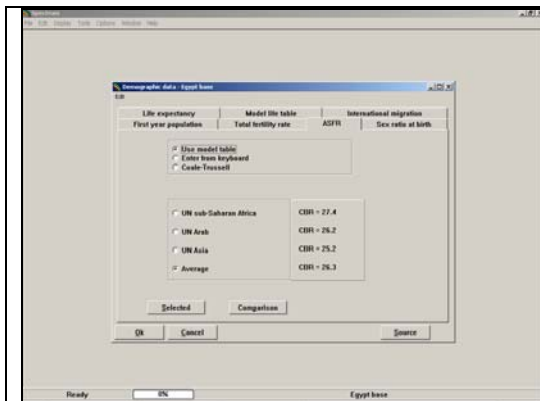


we can again select all the years from 2000–2015 and then press the “Interpolate” button, which will create a linear interpolation between the first year and the last year. This is a way to rapidly enter future projections that assume constant values or linear change to some target value for some final year.

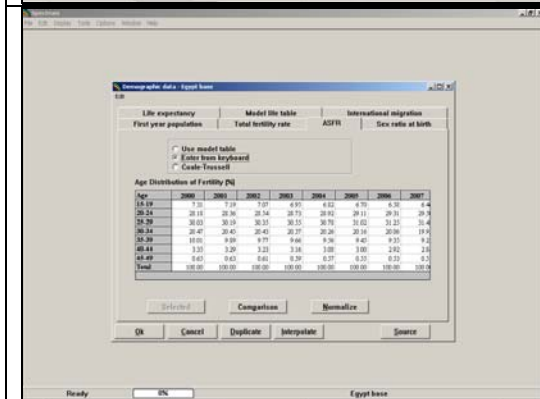


The next tab is the “Age Distribution of Fertility.” And what you are seeing in the editor here for each year, by age, is the percentage of a woman’s lifetime fertility that occurs during each 5-year period. So, in this example, we are saying about 7% of a woman’s births occur when she is 15–19, and that increases to 30% in the 25–29 age group. You can enter these values directly from the keyboard, and you might want to do that if you have a national fertility survey, such as the DHS, that provides this information. You can also use a model table.

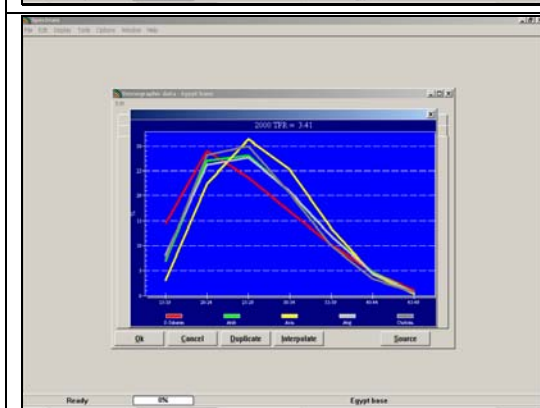
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A model table explains how the age distribution of fertility changes over time as the total fertility rate changes. There are four options here for regional fertility ranges or a global average.

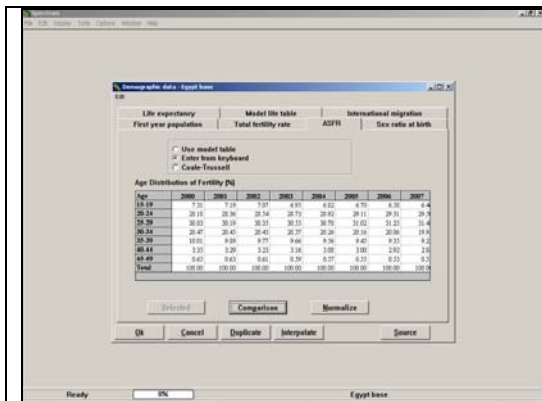


In either case, let's go back to "enter from keyboard. You can click on "comparison."

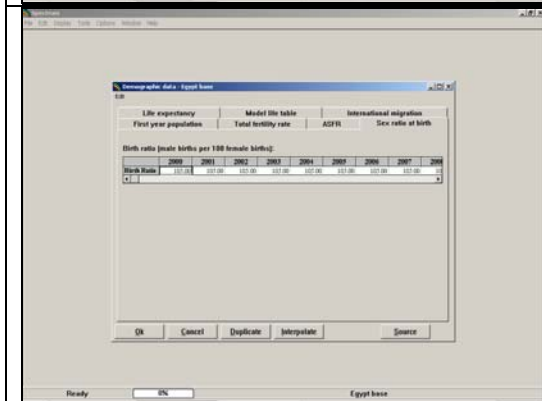


Then click the "Chart" button to see the information that has been entered. What we see here are the four different model patterns of how fertility is distributed by age; this will still produce the same total fertility rate. But you can see that the Asia pattern produces more births later in a woman's life than the sub-Saharan Africa pattern, which produces more births earlier in a woman's life. When you are done, you can close the graph and return to the editor.

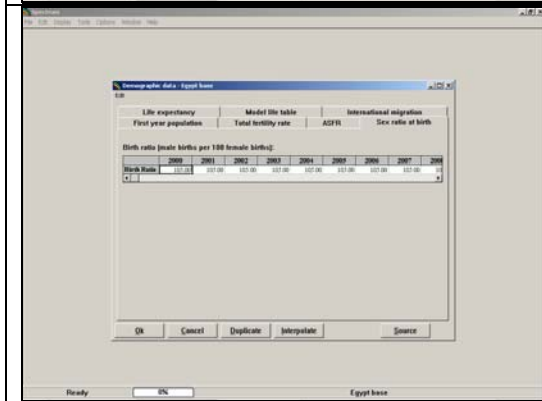
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I am going to close this and look at the next input, which is the “Sex Ratio at Birth.”

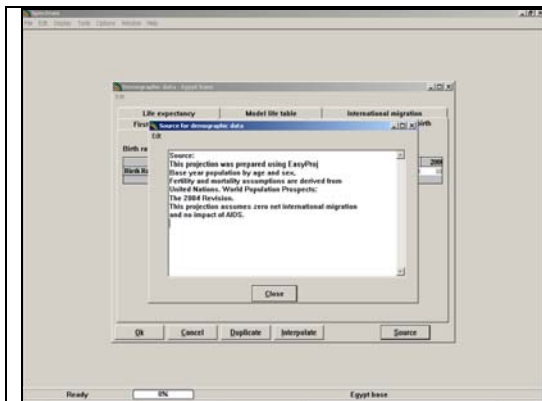


This editor shows us the number of males born for every 100 females—usually figures around 105 or 103 are typical; and, as you can see,

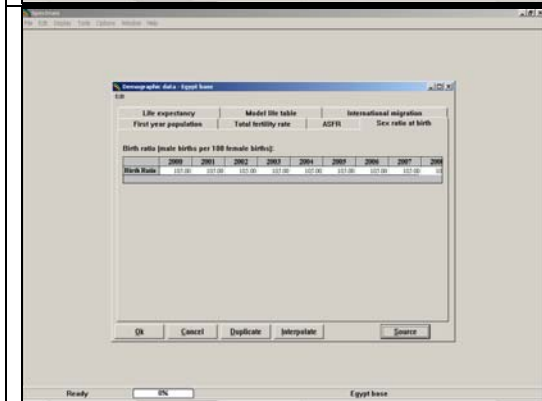


this particular projection has the birth ratio remaining constant. Before we move on to the next one, I want to explain the “Source” button.

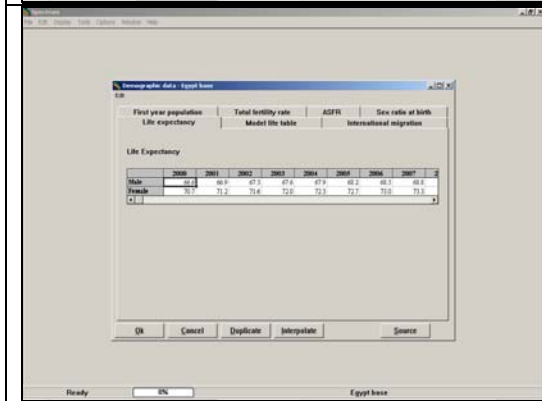
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If you click on this button, it will enter for you a small word processor. It allows you to type in notes about sources of data you have collected or assumptions you have made. When you add these notes into the source box, they will be saved with this particular projection. So, if a few months from now, you return to these projections and you have forgotten why the birth ratio remains constant, you can click on the “Source” button to see your notes.

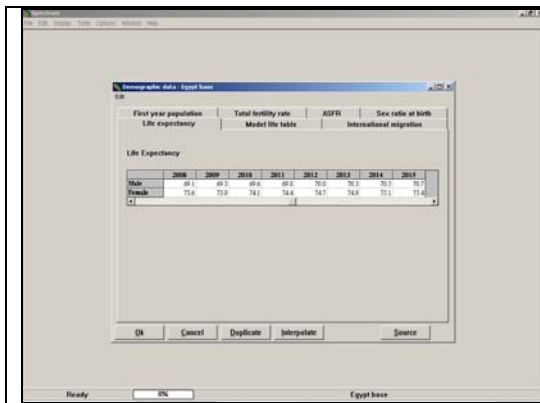


We strongly encourage you to use this feature because you will need it in the future.

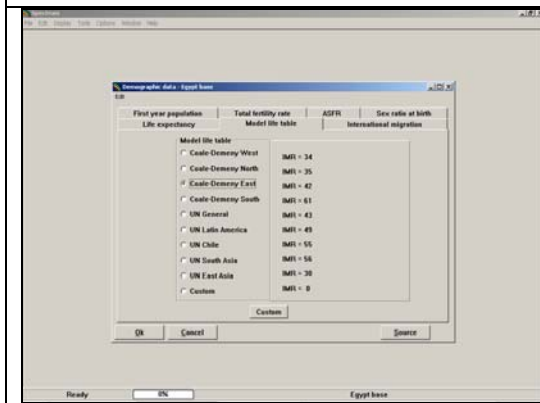


Now, let’s click on the “Life Expectancy” tab, and it will show us—for males and females—the estimated life expectancy at birth

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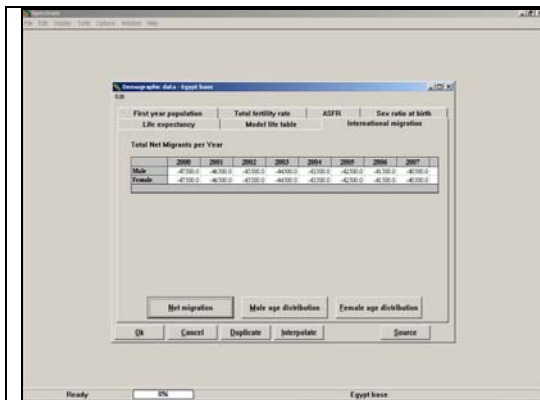


for each of the years in our projection. Again, these are coming from the UN Population Division estimates for Egypt; you can enter your own estimates if you have an official population projection or some other source, or you can modify these to see how changing life expectancy would affect some of your demographic outputs. It is important to mention that for countries with severe AIDS epidemics, the life expectancy input to Spectrum is the non-AIDS life expectancy. That is, the life expectancy we would see if no one was dying from AIDS. This is because Spectrum will calculate the number and distribution of AIDS deaths and add them to the deaths from all other causes and produce a new AIDS-adjusted life expectancy. Life expectancy is a summary measure that will tell us about overall mortality.

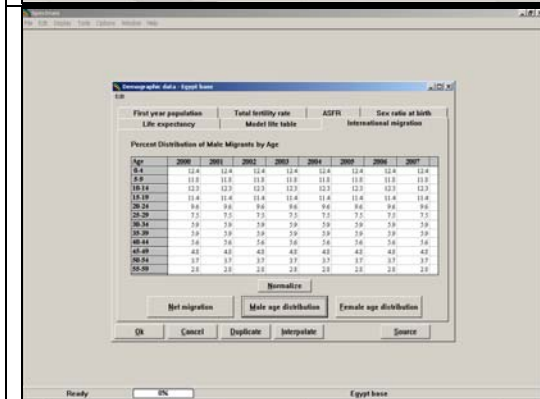


But to do a full population projection, we need to know age- and sex-specific mortality rates. Rather than enter all that information by hand, demographers have developed model life tables to ease that entry. In this tab, we can select from two different sets of model life tables. The Coale-Demeny models provide coordinates for West, North, East, and South; and United Nations Tables provide a separate set of model patterns of age and sex mortality. You should select the life table that most closely represents the mortality pattern in your country. Generally, demographers will have already determined this. You can also compare information you might have on AIDS-specific mortality with what results are in these life tables. You can also compare the infant mortality rate in your country with the tables shown here, which calculate the infant mortality rate you would see if you selected each one of these life tables.

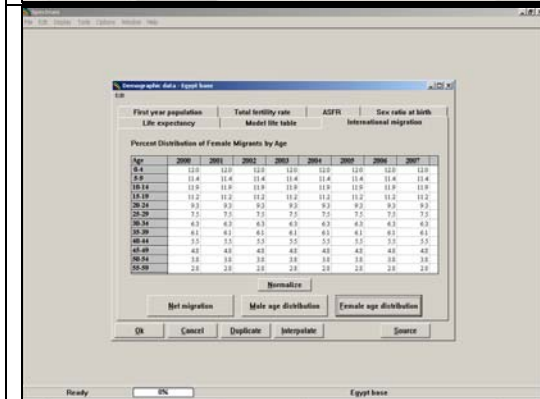
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The final input is international migration. Really there are three inputs here. The first one is the net migration. A negative number means more people are migrating out of the country; a positive number means more people are migrating into the country. The first editor looks at the total numbers of men and women entering or leaving the country.

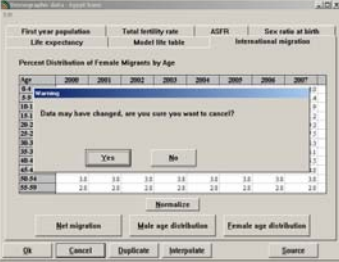




So, the first editor shows you the total number of people, and this editor shows how they are distributed by age. So, the first number shows you the total number of people, and this one shows them by age.

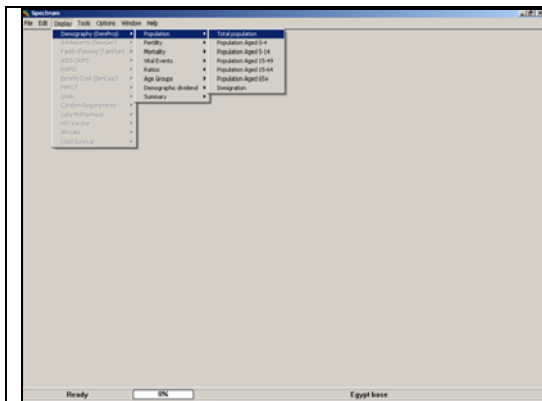


We have one tab for males and another for females. Again, these will be filled in with default values prepared by Easyproj, but you can certainly change them as you wish. Those are the basic inputs for DemProj. Once we are finished with all that, you can click "Okay" to leave, or if you do not want to save your changes,

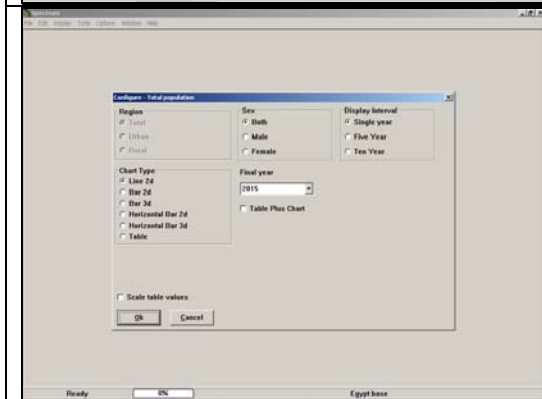
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		<p>you can click on the “Cancel” button.</p>
		<p>When you return to this dialogue box, you can click “Close.” And now we will be ready to display the results of our work.</p>
		<p>To display the results, click on the “Display”</p>

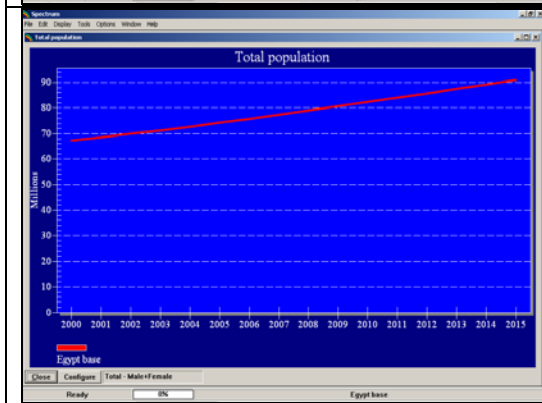
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selection in the Spectrum menu and then select “Demography.” This will bring up a number of sub menus that allow you to choose the graphic indicator. For example, if you were to choose “Population” and “Total Population” from the display menu.

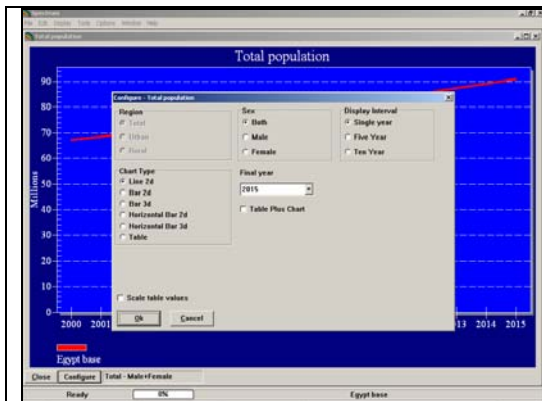


You will then see a dialogue box that looks like this—that essentially allows you to decide how you want to see the indicator displayed. You can change the chart type from a line graph to a bar chart or a table. You can display both sexes combined or just male and female. You can also change the final year of the projection. Let’s look at a line graph with both sexes combined.

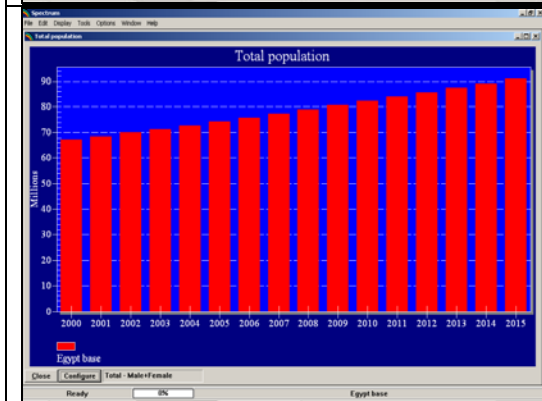


When I click on “Okay,” I get a chart showing the total population from 2000–2015. At the bottom is a “Configure” button. If I click “Configure,”

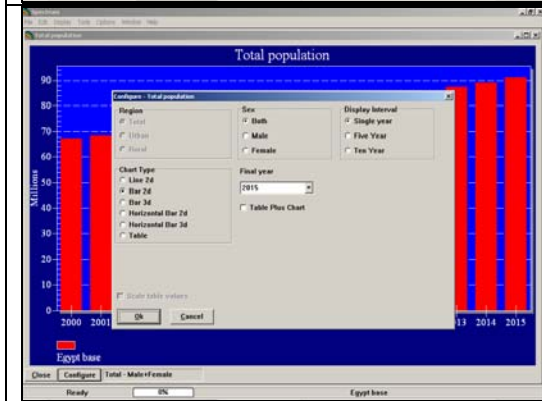
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it takes me back to the setup dialogue. Now I can change the type of display—to a bar chart, for example.

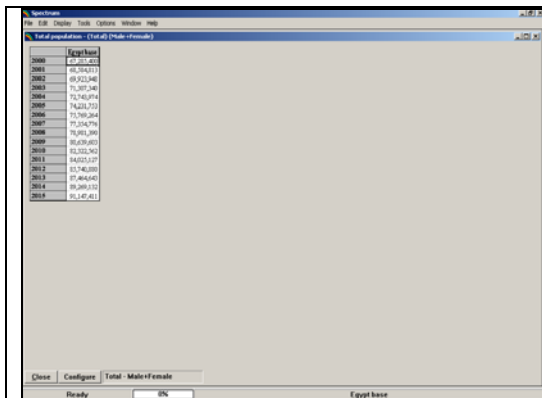


Then click “Okay” and see it as a bar chart over time. If I click “Configure” again,

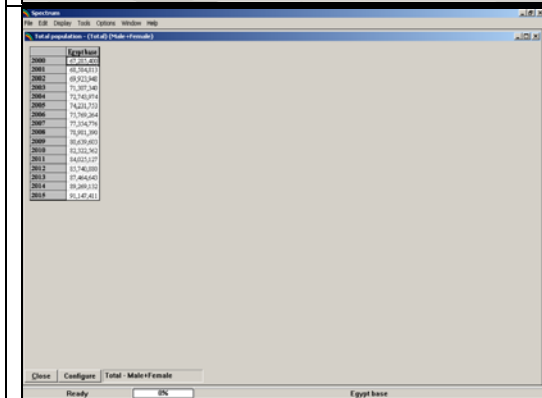


I could change the display to a table,

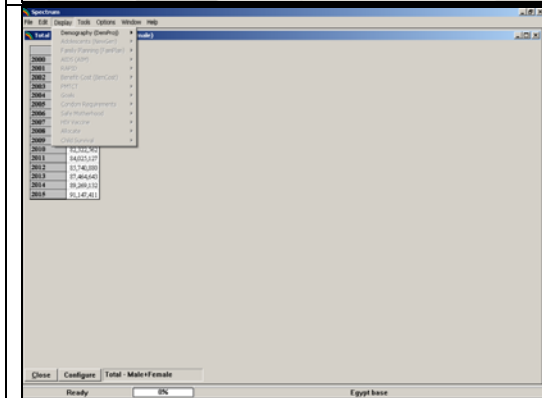
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and when I do that, I get a table of values that I could easily print out, or I could go to “Edit”

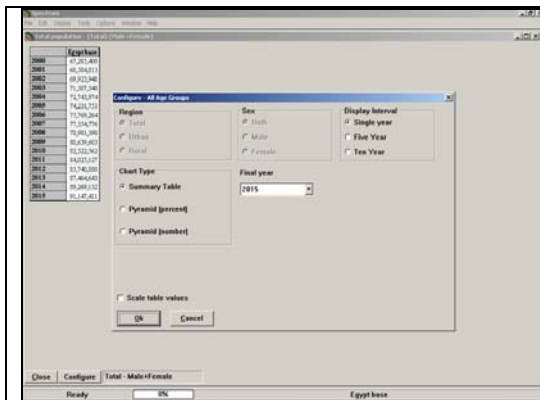


on the display menu, copy all, and it would copy it to the Windows clipboard. I can then paste it into Excel, Word, or some other Windows application.



Let’s go back to “Display” and select a different display type. If I select “Demography” and then “Age Groups,” from that, I will select “All Age Groups,”

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and we get another dialogue box asking how we want to view the display—but now the choices are different. A summary table will show us the numerical values. Or, we can look at these outputs in terms of pyramids. Let’s pick “Pyramid by Number.”



Then, I’ll get a pyramid chart that looks like this. The chart on the left is showing me the situation in the base year, in this case 2000. Males on the left and females on the right; the width of each bar is showing the number of people in each 5-year age group. The pyramid on the right is identical right now, but when I click on one of these buttons to change the year, the display on the right will change. When I click on the “Next Year” button,



each time I click that button,

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the display will advance one year,



whereas the chart on the left will stay for the base year.



If I click the "Last Year" button, I can see what the population pyramid will be like for Egypt for the year 2015 and can easily compare it with the population pyramid for the year 2000. There's one final display tab we need to look at.

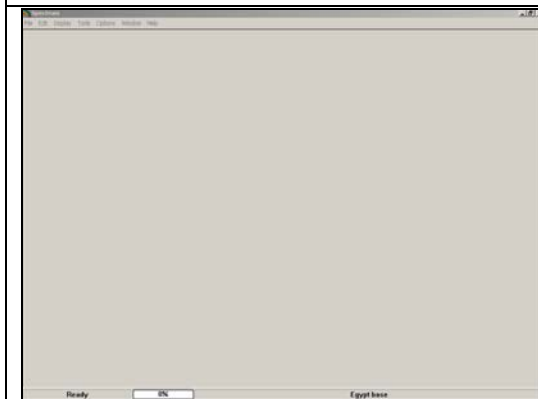
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Class id	2004	2005	2006	2007	2008	2009	2010	2011	2012
1 Total population (Total/Male/Female)	68.0	69.3	70.6	71.9	73.2	74.5	75.8	77.1	78.4
2 Demographic data	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
3 Fertility rate (Total/Male/Female)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
4 Life expectancy (Total/Male/Female)	68.0	69.3	70.6	71.9	73.2	74.5	75.8	77.1	78.4
5 Migration	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

go back to the “Window” selection in the menu bar and look at your previous charts.

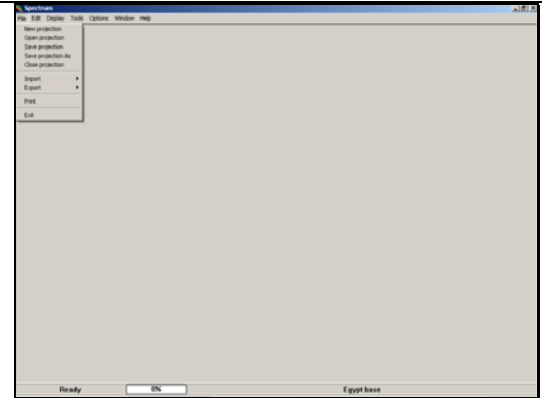
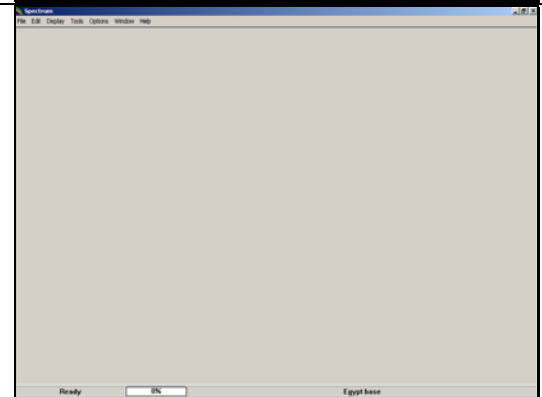
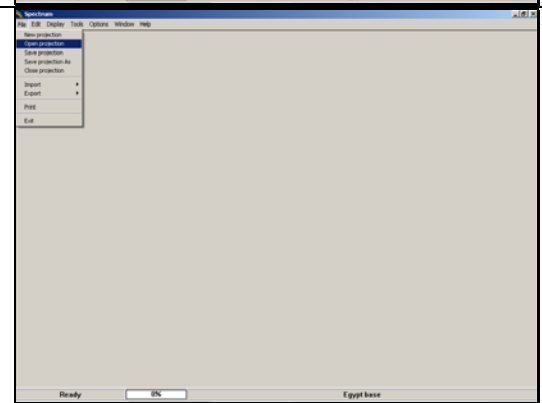
Year	Total population
2000	67,324,411
2001	68,324,411
2002	69,324,411
2003	70,324,411
2004	71,324,411
2005	72,324,411
2006	73,324,411
2007	74,324,411
2008	75,324,411
2009	76,324,411
2010	77,324,411
2011	78,324,411
2012	79,324,411
2013	80,324,411
2014	81,324,411
2015	82,324,411

So, you can go back to the total population chart,






and once you are done, you can click the “Close” button.

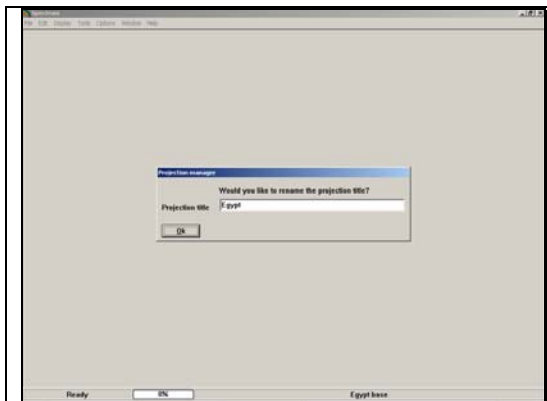
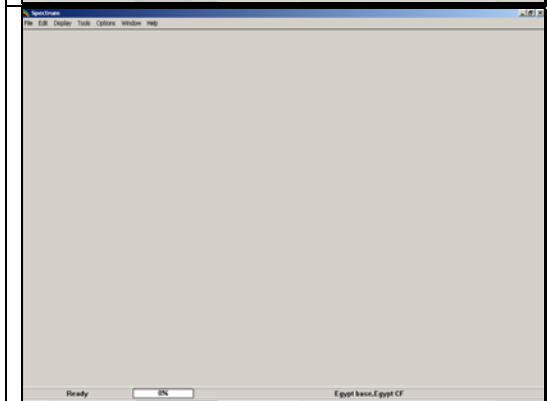
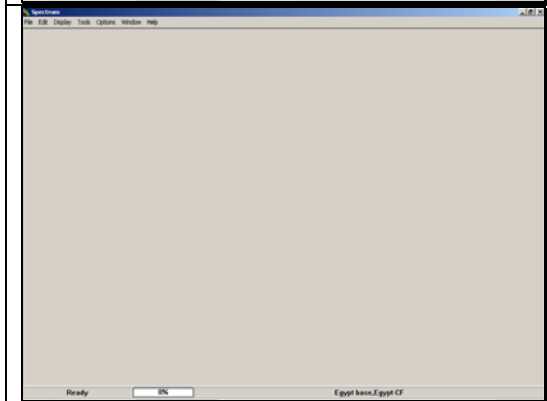
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		<p>Before we do anything else, let's save our projection by clicking on "File" and "Save Projection."</p>
		<p>This will save a copy of our work so we will not lose anything in case we have any problems in the future. The next feature I would like to show you is how Spectrum can display more than one projection at a time—up to four projections. So let's use that feature to compare the differences in the population projections with two different scenarios. An easy way to do that is to click "File"</p>
		<p>And "Open Projection."</p>

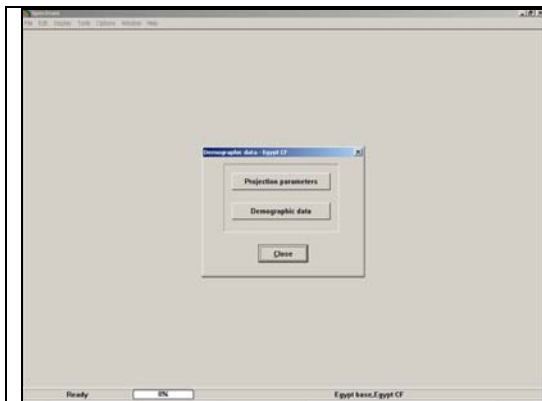
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		<p>We are going to select the same projection, "Egypt Base,"</p>
		<p>click on the "Open" button, and Spectrum recognizes that the projection is already loaded and is asking us, "Do we want to load it again?" We are going to say "Yes," load, and re-name.</p>
		<p>It will then ask us for the new name. I am going to call this "Egypt Constant Fertility"</p>

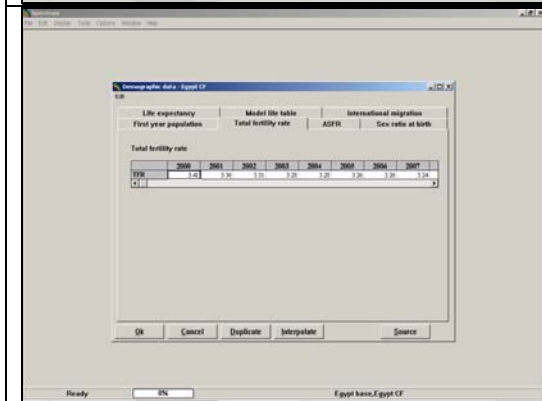
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		<p>and save that. It's giving me the option to change the title, and I am going to leave the title the same and click "Okay."</p>
		<p>Now we have two projections loaded, and you can see at the bottom of the screen the captions, "Egypt Base" and "Egypt CF," which indicate we have two projections. Right now, they are the exactly the same—the inputs are all the same. We are going to change the inputs for one of these projections and then compare the results. We are going to go back to "Edit," then "Demography."</p>
		<p>Now we have two projections, so we are going to select which one to edit, and I am going to select "Egypt Constant Fertility,"</p>

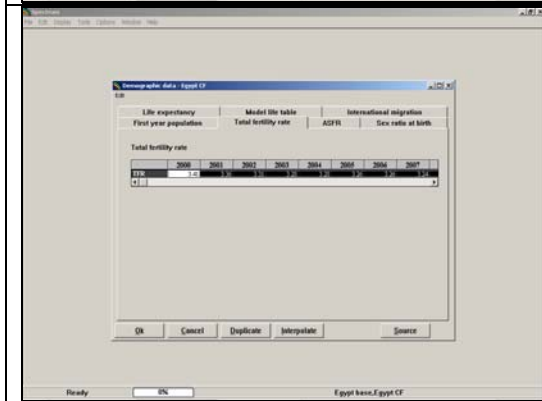
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click "Okay," and edit the demographic data.

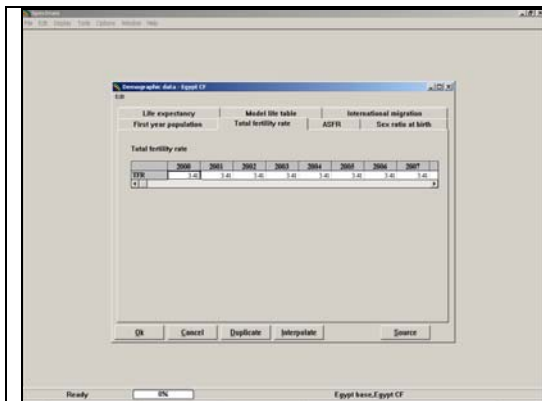


Now what I want to do for this projection is to keep the total fertility rate constant. I want to see what difference it makes if fertility declines according to the United Nation Population Division's projection, as opposed to if it remains constant.

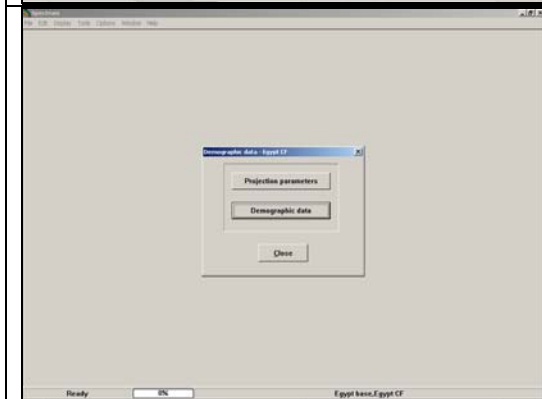


So, we are going to select the entire row and click "Duplicate,"

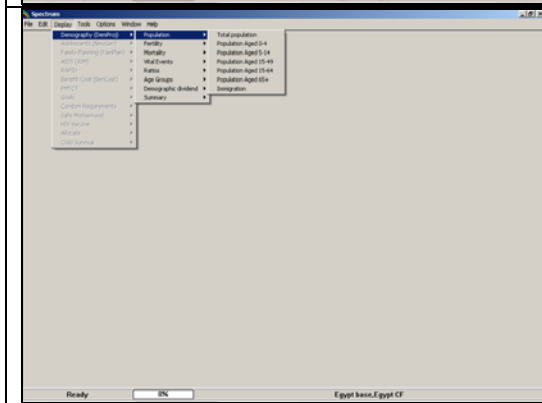
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which copies the total fertility rate of 3.41 to all the years.

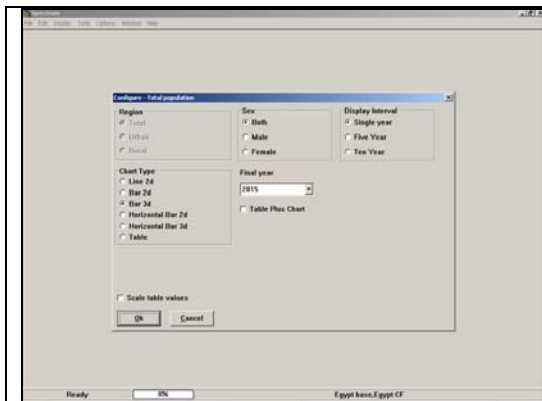


Now we can click "Okay" and close. Now let's look at the results of our scenarios.

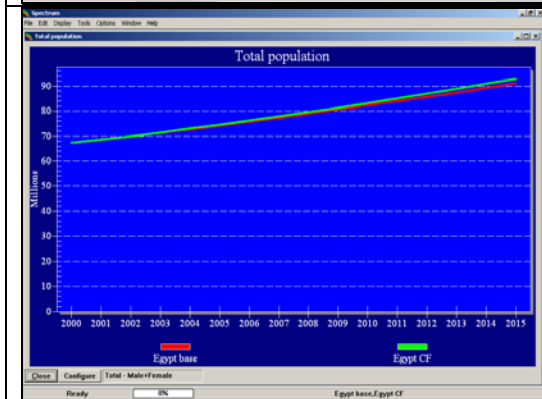


If we go to "Display," "Demography," "Population," "Total Population,"

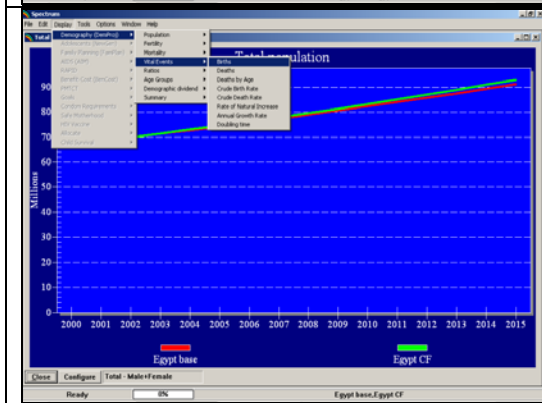
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We can display a new line graph which will show us total population under the two scenarios. First, Spectrum is going to re-project because it knows we made a change to some of the inputs. So let's project as a line graph.

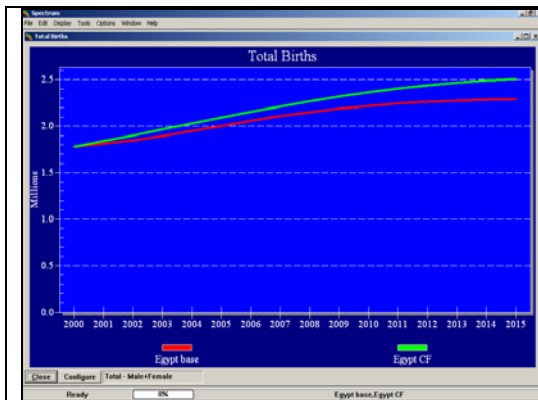


Now you can see that the green line on top is our new projection with constant fertility, and the red line is our original projection with declining fertility. There is not much of a difference in the total population. Perhaps there would be a bigger difference if we looked at total births.



So let's go to, "Display," "Demography," "Vital Events," and "Births."

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Now that we have a bit more of a difference, we can see that the number of births would be perhaps 10% larger by 2015 if fertility remained constant, rather than declining, according to the UN projection.

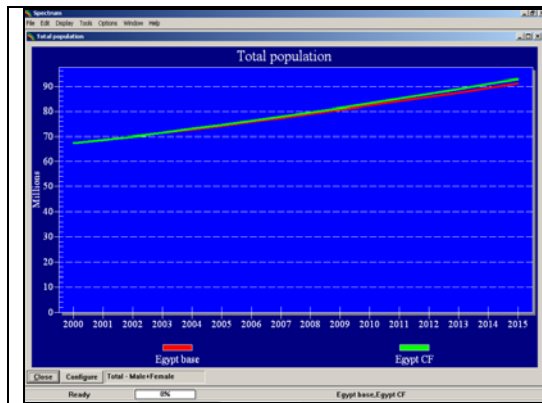


If we look at "Display" again and display our summary chart once more,

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Egypt													
Fertility													
Input TFR	3.41	3.36	3.31	3.28	3.25	3.20	3.16	3.14	3.12	3.10	3.08	3.07	3.06
CRFR	1.98	1.94	1.90	1.86	1.82	1.78	1.75	1.73	1.71	1.70	1.69	1.68	1.67
NSFR	1.36	1.33	1.30	1.27	1.25	1.22	1.20	1.19	1.18	1.17	1.16	1.15	1.15
Share Age of Childbearing	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Child women ratio	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Fertility table - Census													
Mortality													
Male LE	69.4	69.3	69.4	69.3	69.2	69.4	69.7	69.9	69.2	69.5	69.7	69.7	69.6
Female LE	70.7	70.6	70.7	70.6	70.7	71.0	71.2	71.6	71.6	71.9	72.1	72.3	72.3
Total LE	69.4	69.0	69.4	69.7	69.9	69.2	69.5	69.5	69.5	70.5	70.3	70.5	70.7
SDR	40.0	40.2	39.4	38.9	38.5	38.2	38.0	37.8	37.5	37.3	37.1	37.0	36.9
USDR	40.1	40.7	41.1	41.4	41.6	41.9	42.1	42.4	42.6	42.8	43.0	43.1	43.2
Life table - Crude (Demog East)													
Immigration													
Male immigration	-47,500	-46,500	-45,500	-44,500	-43,500	-42,500	-41,500	-40,500	-39,500	-38,500	-37,500	-36,500	-35,500
Female immigration	-47,500	-46,500	-45,500	-44,500	-43,500	-42,500	-41,500	-40,500	-39,500	-38,500	-37,500	-36,500	-35,500
Total immigration	-95,000	-93,000	-91,000	-89,000	-87,000	-85,000	-83,000	-81,000	-79,000	-77,000	-75,000	-73,000	-71,000
Net Inflow													
CRFR per 1000	19.1	18.7	18.4	18.1	17.8	17.5	17.2	17.0	16.8	16.7	16.6	16.5	16.4
CRFR per 1000	18.3	18.0	17.7	17.4	17.1	16.8	16.6	16.4	16.3	16.2	16.1	16.0	15.9
CRFR per 1000	12.9	12.8	12.7	12.6	12.5	12.4	12.3	12.2	12.1	12.0	11.9	11.8	11.7
CRFR per 1000	17.3	17.4	17.5	17.6	17.7	17.8	17.9	18.0	18.1	18.2	18.3	18.4	18.5
Annual Births and Deaths													
Births	1,776,717	1,767,616	1,757,515	1,747,414	1,737,313	1,727,212	1,717,111	1,707,010	1,696,909	1,686,808	1,676,707	1,666,606	1,656,505
Deaths	403,014	403,014	403,014	403,014	403,014	403,014	403,014	403,014	403,014	403,014	403,014	403,014	403,014
Population													
Total population	67,287,480	68,348,811	69,410,142	70,471,473	71,532,804	72,594,135	73,655,466	74,716,797	75,778,128	76,839,459	77,900,790	78,962,121	79,962,121
Male population	33,643,740	34,174,405	34,705,070	35,235,735	35,766,400	36,297,065	36,827,730	37,358,395	37,889,060	38,419,725	38,950,390	39,481,055	40,011,720
Female population	33,643,740	34,174,405	34,705,070	35,235,735	35,766,400	36,297,065	36,827,730	37,358,395	37,889,060	38,419,725	38,950,390	39,481,055	40,011,720
Population 0-4	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Population 5-14	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
Population 15-64	55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0
Population 65+	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0

Spectrum will actually display the summary for both projections one after the other. You cannot see all the indicators at once on the first screen so click somewhere inside the editor and then the scroll bar will become active and you can scroll down to see the rest of the indicators as well as the second projection. As I mentioned before, you can load up to four projections at once so you can easily compare the effects of different assumptions about fertility, life expectancy, model life tables, migration, or any other variables that you would like to examine.

Part 2 Handout: Introduction to DemProj



When you are all done, you can click "Close." This is all you need to know to use DemProj; now you can produce a full demographic projection and use these figures to examine changes in demographic parameters and for planning. DemProj also becomes the basis that provides the demographic information to all the other modules in Spectrum that look at the impact of HIV, the impact of family planning, safe motherhood, and other sections. This ends module two. Thank you.