ESPlanner’s Approach to Financial Planning

Traditional financial planning asks households to do all the hard work. It makes them set their own saving and life insurance targets. This puts them at risk. If they set their targets too low, they’ll be advised to undersave and underinsure. If they set their targets too high, they’ll be advised to oversave and overinsure. ESPlanner finds the right targets. It calculates a household’s highest sustainable living standard and the amount of saving and life insurance needed to maintain and protect that living standard through time.

ESPlanner was developed by two of the nation’s leading experts on saving and insurance—Dr. Jagadeesh Gokhale, former Senior Economic Advisor to the Federal Reserve Bank of Cleveland and now Senior Fellow at the Cato Institute, and Professor Laurence J. Kotlikoff of the Department of Economics at Boston University. Their approach is grounded in the life cycle model—the standard economic theory of saving and insurance. According to this theory, households have a fundamental goal in deciding how much to save and insure—spending as much as they can afford while avoiding major reductions in their living standards through time.

Maximizing and “smoothing” a household’s living standard isn’t easy. ESPlanner uses advanced mathematical techniques, including dynamic programming, to calculate the saving and life insurance needed to a) balance consuming in the present with consuming in the future and b) preserve the household’s living standard for survivors. By following ESPlanner’s annual recommendations, households save more when they can and less when they can’t. Their saving, not their life style, adjusts to their economic circumstances. And their life insurance holdings change with changes in their insurance needs.

ESPlanner takes into account a household’s economic resources, taxes, and Social Security retirement, survivor, and spousal benefits. It considers a household’s current and future demographic composition. It also considers its tax-deferred saving, current housing expenses, future housing plans, special expenditures, estate plans, capacity to borrow, life-style preferences, and a host of other key factors.

on the web . . .
Read more about the difference between ESPlanner’s approach and that of traditional financial planning calculators in this article in Investment News.

on the web . . .
For a fuller account of the differences, read “Is Conventional Financial Planning Good for Your Financial Health?”
ESPlanner’s contingent planning feature recognizes that survivors may have special needs and different incomes. ESPlanner also lets users quickly vary its inputs, like the households’ ages of retirement, ages of collecting Social Security retirement benefits, and ages of withdrawing tax-deferred assets, to determine how these choices alter its maximum sustainable living standard.

Although its calculations are based on advanced mathematical tools, its interface is very user-friendly, and its recommendations are easy to follow. Furthermore, it’s easy to check that ESPlanner is smoothing and preserving households’ living standards to the extent possible given one’s assumptions.

**Tips for Getting Started**

Scan the pages of this manual to get a sense of the scope and capabilities of the software. However, you don’t have to study every page of this manual to get started. Begin by creating a new family and then work through the input folders, entering your data as best you have it available. You may have to request a work history from the Social Security Administration in order to fill in the amounts you’ve paid into Social Security since the age of 16. (They mail this document to you each year so perhaps you have one from years past.) If you don’t have that document at your fingertips, you can still begin to learn to use the software and add that data later. Add your income and work through the other folders as best you can. As you have questions, return to this help manual for more information. You'll think of details to add as you use the software and become more familiar with its features. This document should help to answer questions as you use the software, but it will also suggest ideas for you to try out; you should move back and forth from the software to the manual and back again.

ESPlanner is a complex calculator. Although you can plug in basic data rather quickly and begin to generate reports, most users add more complex data over time and explore the calculator’s input features such as contingencies and survival reports later.
A family’s life economy is very complex. Children are born and eventually move away; we save for college, buy and sell homes, use company pension plans, 401k, ROTH, and IRA retirement accounts, each with different tax consequences. Tax burdens change throughout our lifetime; inflation and compounding interest change everything. Many of the “best” solutions to this giant economic puzzle involve personal judgments and decisions. ESPlanner is solving these puzzles to create the highest, yet smoothest, standard of living possible. But as a user, you must also approach the puzzle with some creativity: try using Roth IRAs instead of the 401k; push Social Security back to age 70; tap the pension early or later. Most of these variables involve some kind of trade off that different people might evaluate differently. As you try different things, you’ll find new combinations of ways to optimize your family’s life economy.

**Adding a Family**

To enter a new family, click the New button on the family tool bar located near the word “Family” at the top left of the application. Next select married, partnered, or single and enter your name, date of birth, gender, and, if applicable, that of your spouse or partner. Click “Next” and enter your home state and children. Use +(Add) to add more than one child. Click “Next” again and give your profile a name. Finally, click “Add,” the family’s name will appear on the Family List and you are ready to input earnings.

**Customizing ESPlanner**

Using the Help drop down menu, you can choose Customize and enter global program settings. One of the most useful settings here is the ability to choose to begin calculations in a future year (when you find yourself using ESPlanner late in a calendar year you may want to choose the next year).
After creating a new family, click on each item in the menu tree (left) and fill in the form. Begin with basic information and add more details as you develop your “profile.”
Activating Contingent Planning and Monte Carlo

To activate Monte Carlo or Upside Investing features of the program (PLUS version only), choose the “Planning Method” folder on the menu tree and read through the instructions there. The contingent planning is also activated in its own folder.
ESPlanner’s Input Folders

To access a family’s input folders, click on the family’s name in the Family List in the left column, then click on the name of the profile you’d like to edit (there will be just one to begin with), and then double click on the profile name and select the folder you want to edit. You input your data by clicking on each folder and adding your data to the input screen associated with each folder.

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_on the web . . ._

Listen to a thirty-minute interview with Professor Kotlikoff. He discusses basic concepts such as consumption smoothing, targeting mistakes, and he describes the basic difference that ESPlanner and the economic approach provides.
Earnings Folder

This folder asks you to project your family’s future pre-tax labor earnings and retirement age as well as those of your spouse/partner. Retirement age is the age from which labor earnings will be zero. This may be later than the age at which you or your spouse/partner stops working at your respective principal jobs if you or your spouse/partner plan to work for pay thereafter.

If you are married or have a partner, the earnings you enter will be assumed to stay the same for each regardless of whether the spouse/partner is alive or deceased. If this is not the case, activate the Contingent Planning input folder by clicking on that folder and use that folder that is thus activated to specify how the early death of a spouse/partner will affect the surviving spouse/partner’s labor earnings.

The earnings folder considers two types of earnings: employee wages and self-employment earnings. All earnings are entered in today’s dollars. If you are married or partnered, begin by selecting a spouse or partner, enter that spouse/partner’s retirement age and earnings data, and then select the other spouse/partner and do the same. Enter wages, including your contributions to retirement accounts (the program will be aware of tax deferred contributions when calculating your taxes). Other amounts such as payments to cafeteria health plans, parking, or union dues can be entered as taxable or non-taxable special expenditures. (see Special Folder below). How exact do you need to be about these other paycheck expenses? The two main issues here are that you want your tax calculation to be accurate and you want your final consumption number to be accurate. If, for example, parking is deducted on your check from gross wages but not accounted for in special expenditures, you might want to make a mental note that your final consumption (and standard of living) reflects the fact that you have already paid for parking. But many users might ignore this kind of fine tuning unless
the amounts are significant and recurring and not accounting for them as special expenditures would tend to misrepresent taxes and the final consumption amounts. If you include a paycheck-expense such as parking or union dues in wages and then enter it as a taxable or non-taxable special expenditure, your taxes and household consumption number will be adjusted accordingly.

To enter labor earnings, click on the grid to select a year, enter the earnings amount (in today’s dollars) for that year in the dollar field, and click the Apply button. If you want your earnings in years after the selected year to grow at a constant (above/below inflation) rate, enter the desired rate, and click the Grow button. But remember, if you get a raise of say, 4%, your earning power is raised by only 1% each year if you assume 3% inflation in the Assumptions panel. If a typical raise at work is 4% per year, and you assume 3% inflation, you should grow your wages by 1% (notice the entry area asks for growth in “real terms”) and the program will adjust your future earnings for inflation to reflect today’s dollars. In other words, if real wages (wages valued in today’s dollars) will stay fixed, enter current wages and grow them at a zero rate. This will make nominal wages (actual wages received) keep pace with inflation. In other words, if you expect a raise for “cost of living,” enter 0% growth and the program will assign you a raise each year that matches what you enter for inflation in the Assumptions area (defaults at 3%).

The earnings you enter (or see entered for you using the Grow button) for future years are in today’s dollars, which means they have the same purchasing power as that amount of earnings has in the current year.

on the web . . .
Read research by Gokhale and Kotlikoff that explains why life insurance recommendations provided by ESPlanner’s economic approach are considerably different from those provided by the conventional approach.
**Special Folder**

The first tab of this folder asks you to enter special expenditures you expect to incur this year or in future years. Examples of special expenditures are college tuition payments, gifts, weddings, medical expenses, special purchases of cars, or an expensive vacation. You can enter special expenditures for a fixed number of years or on a recurring basis.

Note, special expenditures are special, non-recurring expenses. Do not enter expenses that you consider a typical part of your monthly or annual budget. The program’s annual recommended level of consumption indicates how much the household can spend each year on regular expenses after retirement savings, housing expenditures, taxes, and life insurance premiums. The Budgeting Report provides an excel spreadsheet that can be used with families to help them budget within the ESPlanner consumption expenditure recommendations.

It is not necessary to account for every monthly expense or anticipate every expense. Most users will find that if an expense occurs each year—such as charitable giving or even car payments—then it’s best to just view that as something you expect to treat as “consumption” rather than as “special” or not typical. However, if you were, for example, purchasing a boat, and you knew this was the last boat you’d ever purchase, that might be something you’d list as a special expenditure. When you look at the consumption amount in the annual recommendation report, that number—which is your bottom line—reflects your discretionary spending after paying for special expenses.

**Where do I enter groceries, car payments, and other budget items?**

ESPlanner shows how our personal economy works across the years, not within a single year. How would you know what you’ll spend on gasoline ten years from now? So don’t enter these monthly expenses. Only enter “special expenditures” if they are really outside of your expected annual spending—for example an expensive wedding or special European vacation. This way, when you look at your discretionary spending number, you’ll know that this is what you have to spend on ordinary annual budget expenses but not “special expenditures.”
If you are married or partnered and your spouse’s or partner’s future special expenditures will be different if your spouse or partner is (if you are) deceased, activate contingent planning at the top of the screen and enter (in the contingent planning folder) the special expenditures that will prevail under that contingency when you create a survivor report.

The second tab asks you to enter the special receipts your family expects to receive this year and in future years. Examples of special receipts are alimony payments, inheritances, child support, charitable contributions, income from the sale of a business, and support from your parents.

If you are married or partnered and future special receipts will be different if one or the other is deceased, activate contingent planning at the top of the screen and enter (in the contingent planning folder) the special receipts that will prevail under that contingency and then appear in the survivor report.

When you express a future special expenditure or receipt in today’s dollars, you tell the program that the expenditures or receipts will have the same purchasing power in the future as the specified amount would have in current year. When you express a future expenditure or receipt in (nominal) dollars, you are telling the program that the real purchasing power of the expenditure or receipt will be eroded through time due to inflation. If you enter a special expenditure in today’s dollars, both the current year dollar amounts and actual dollar amounts are displayed. The same is true if you enter a special expenditure in dollars. To remove a special expenditure from the list, click on the box left of the description and click delete.

ESPPlanner treats your special expenditures as “off-the-top” expenses in calculating the amount your household can afford to spend through time on its living standard. It treats your special receipts as additional income that you receive in the year it arrives.

You need to tell the program if your family’s special expenditures are tax deductible or excludable from adjusted gross income (AGI) in calculating federal income taxes. An example of a tax-deduct-
ible special expenditure is a charitable contribution. An example of a tax-excludable special expenditure is alimony payments.

**Reserve Fund**

The third tab in the Special Folder is Reserve Fund. Here you can describe assets your family currently has or wants to accumulate but doesn’t want to spend until a specific date. To build a reserve fund, the program saves regular assets and then hands them over to the reserve fund in the specified year. After a reserve fund has assets, these assets are no longer included as regular assets, but are shown instead as reserve fund savings. This prevents them from being used for consumption smoothing.

The program asks you to enter, in today’s dollars, the desired level of the reserve fund for a specific year or series of years. You can grow a set amount by zero percent if you want to roll a steady amount over to the next year (i.e., not use it) but not add to it. The input panel then shows the size of that fund in each year in dollars, as well as the amount, in today’s dollars and future dollars, that will be added to or withdrawn from regular assets each year in order to match your target. Inflation and nominal return will both affect this number.

The first two columns in the reserve fund panel reflect the simple function of the inflation rate in your assumptions folder. The third and fourth columns are related to both inflation rate and the nominal rate of return that you intend to earn on your reserve fund. You can see how these numbers interact by experimenting with a nominal rate that is the same as your inflation rate set in the assumptions folder. Your net amount in the reserve fund earns interest at the specified rate of nominal return.

Any negative net contributions represent money that is being handed back to regular assets. Any positive net contribution is money that is being pulled from regular assets. Reserve funds will become available to a survivor in the event of death.
1. The annual return you expect to earn on the money you have set aside in the reserve fund.

2. The amount you will carry over into the fund from the year prior to the current year.

3. In this case, the amount of 6000 was entered in the year 2014 by 1) selecting the 2014 row, and 2) entering 6000 and, 3) clicking “Apply.”

4. Next, we grew the fund by 0% real, which left the fund steady at 6000 in today’s dollars through age 100. We then chose the year 2019 and went back to step 3 and entered 0. Finally, we “grew” the 0 amount by 0% and this cleared the remainder of the grid as you see at left.

5. The result presented here (and in the Reserve Fund report) shows the net contributions in today’s dollars--6K in 2014 and a -175 for 4 years, and then a -6,175. Although you see no reserve fund saving from 2009-2013, we are accumulating money in regular saving (see Regular Assets report) so that the 6K we set aside in reserve in 2014 is available at that time we say we want to fund the reserve fund. While the 6K is in the reserve fund 2014-19, this money is not available for consumption smoothing. However, the negative amount we see in 2019 means this money is withdrawn from the Reserve Fund and transferred to Regular Assets unless there is a Special Expenditure scheduled to spend it.
The reserve fund functions somewhat like special expenditures, but with several important differences. ESPlanner will also automatically save regular assets for special expenditures just as it will automatically save regular assets to create a reserve fund of the desired amount by the date you specify. There is no need to try to manually specify through annual contributions how that reserve fund should be created. Given a single amount and a single year, ESPlanner will create the fund in regular assets as smoothly as possible. But a special expenditure is saved for and then used or spent in a specified year, whereas a reserve fund that drops from some amount down to zero (making it available to regular assets) will gradually be smoothed back into your economy through regular assets if there is no expense specified to lay claim to the funds.

A reserve fund balance can be maintained steady in today’s dollars over a period of years by growing it by zero percent. The impact on future dollars and net contributions will be determined by the inflation rate and by the nominal rate of return.

In other words, the difference between special expenditure and reserve fund is that the latter can be used to sequester savings from your consumption. It will earn interest at a rate different from regular assets because you indicate its nominal rate in the reserve fund panel. And it will not be available for consumption smoothing as expenses arise in the economy. So if you begin your first year with ESPlanner and have 5000.00 saved in the bank, this money will be available for consumption unless you put it in the reserve fund. If this amount is entered as regular assets and savings (which is the first thought of most users), it is immediately available for consumption smoothing purposes. On the other hand, if it is brought into ESPlanner through reserve fund and carried over from the prior year (see the first data entry slot in the reserve fund panel) it will accumulate interest and add to net worth and be seen in your reports, but not be used as regular assets as long as the net contributions do not show a negative number. A negative number in net contributions as seen on the reserve input panel shows the amount of reserve fund that is being handed back to your economy for consumption.
Your annual recommendation report will show a gradual accumulation of regular asset dollars leading up to your target year to create the reserve fund, and then it will show an appropriate negative saving when those asset dollars are moved to the reserve fund. The “total spending” tab in the main report will show the net contributions to the reserve fund as will the “reserve fund” tab in the detailed report. Again, this works the same way as special expenditures, except the money will not immediately be spent in the target year. If you want to maintain your balance in reserve fund (rather than have it given right back over to regular assets), you need to “grow” the reserve fund at least by zero percent so as to roll the balance over to future years. You can release all or part of a reserve fund back into your regular assets economy for consumption, gradually or all at once, by allowing a future year in the reserve fund panel to show a negative net contribution.

Growing an amount by zero or some small percentage to adjust for nominal interest or inflation is a common way to use the grow button. You don’t have to use the grow button to set up a regular saving plan, since ESPlanner is going to gradually accumulate to reach a target anyway.

If you experiment with simple scenarios, you’ll learn the relative impact of inflation and nominal rate on a reserve fund savings plan.

**Estate Folder**

This folder asks you to specify your family’s estate plans. The first tab asks you to specify desired percentage changes in a survivor’s living standards, expected funeral expenses, desired special bequests. The tab asks about your family’s life insurance holdings.

The percentage change in living standard is relative to the living standard of the household prior to the death of this person. You can specify either a positive or a negative change in living standard. Your choice can be entered by either clicking on the toggle triangles or by typing in the desired percentage change (preceded by a minus sign if the desired change is negative).
In choosing the desired change in living standard of survivors, bear in mind that the program automatically adjusts for economies to scale in shared living—the fact that “two can live (proportionately) more cheaply than one.” Therefore, if you specify a zero percentage change in living standard of survivors, the program will a) automatically take into account the fact that survivors (because they are fewer in number) will no longer enjoy the same economies to scale in shared living and b) recommend enough life insurance for survivors to maintain their prior living standard as well as pay for special expenditures, housing, taxes, and insurance premium payments.

In specifying special bequests, bear in mind that ESPlanner makes its saving and insurance recommendations in light of the need to provide for the living expenses of children through age 18. Also bear in mind that ESPlanner automatically takes into account the need of survivors to pay for special expenditures. Hence, there is no need to specify a special bequest to fund those contingent special expenditures that are already entered.

Also note that in specifying special bequests, you are telling ESPlanner that you want to make these bequests at whatever age the household head or spouse/partner dies. And the program adjusts its life insurance recommendations to make sure that your families have enough funds at each of your possible ages of death to cover bequests and also ensure the same living standard for your survivors. If you indicate in the bequests panel that you want your survivor to have a 30% higher living standard, you may see that your term life insurance recommendation goes up.

Next enter the funeral expenses that your household will incur when the person whose name is shown in the name field passes away. The value you enter is in today’s dollars. ESPlanner assumes that the costs of funerals will keep pace with inflation. Typical funeral expenses currently appear to
average about $5000, but your household may not be typical. For example, your household’s income may be lower or higher than the average, so you may prefer to spend less or more on funerals.

The second page of this folder asks about your households’ current holdings of life insurance. You need to provide this information for both yourself and, if you are married, for your spouse/partner. First complete the page for yourself and then use the down arrow in the name field to select your spouse/partner.

The insurance information you provide on this page will be used to determine your families’ total current insurance holdings, which will then be compared with the program’s recommended insurance holdings. What you currently hold will not make a difference in the amount recommended in the main report. You need to provide information about all life insurance policies held by your families. These include employer-provided life insurance policies. However, do not include accidental death or airline insurance policies, since there is no guarantee that death will occur due to an accident, be it airline-related or other.

The face value of a life insurance policy refers to the amount of money the policy will pay out in the case of death of the insured. Whole life insurance policies combine two elements—the purchase of life insurance and saving. The cash value of a whole life policy refers to the accumulated amount of saving that has occurred up to the current date through the policy. It’s referred to as “cash value” because it represents the amount of money the policy owner can obtain by terminating “cashing out” the policy. Since the cash value of life insurance policies represent one of your assets, the program automatically includes the total cash value of all life insurance policies in calculating your total regular assets.
The difference between the face and cash values of a life insurance policy is called the term value. This represents the pure insurance component of whole life insurance policies. Policies that involve only the provision of life insurance and, thus, entail no saving and have no cash value are called term insurance policies. In addition to calculating the total face and cash values of life insurance policies, the second tab of the Estate Folder calculates the total term value of life insurance policies.

**Assets and Saving Folder**

Use the first tab of this folder to enter the market values of your families’ regular assets. Note that the cash value of life insurance policies is automatically filled in from information you provided in the Estate Folder about your life insurance policies.

Use the second tab to specify the amount your family intends to save over the coming year. Saving here refers to the intended increase over the coming year in the families’ regular assets. The program solicits this saving information so it can compare its saving recommendations for the coming year with the amount of saving your family is actually expecting to do.

The program also uses your family’s actual saving to calculate actual, as opposed to recommended, consumption over the coming year. Actual consumption in the current year is calculated by subtracting from current-year total income the sum for the current year of actual saving, taxes, special expenditures, recommended life insurance premiums, housing expenditures, and retirement account contributions.

Contributing more to regular asset accounts is one way to add to the stock of regular (non-housing and non-retirement account) assets. Another is to purchase more regular assets than one sells. A third way to add is to repay loans (apart from mortgages). And a fourth way is to keep saving the real (inflation-adjusted) asset income earned on regular assets. These four ways in which you can add to your regular assets are considered in the first four fields of the Current Saving tab. The following two fields indicate ways of reducing one’s regular assets. The first of these two ways is by receiving income.
on regular assets that is not invested. The second way is to engage in new non-mortgage borrowing. Summing together the four ways of adding to regular assets and then subtracting the two ways of reducing regular assets, yields total current saving—the bottom field on the current saving tab.

**Assumptions Folder**

This folder allows you to enter economic and tax assumptions. The first tab, entitled **Nominal Rates of Return**, asks about the rates of return on your regular assets and your retirement accounts. You are also asked to indicate whether these rates of return will change in the future—if so, you enter the new interest rate and the year you want to assume that it will change.

Note that the expected rates of return fields will be grayed out if you have activated Monte Carlo simulations because the current and future portfolio holdings that you indicate in the Monte Carlo area determine these expected rates of return.

The **Demographics tab** asks you to indicated the **Maximum age of life**, which does not refer to the age at which you can expect, on average, to die, but the maximum age to which you might possibly survive. There is no requirement that both spouses/partners have the same maximum ages of life or that both live, at most, to the same terminal year. In choosing the maximum age of life for yourself and, if applicable, your spouse/partner, you are telling the program how long to plan to maintain your family’s living standard. If you choose relatively low maximum ages of death, the program will realize that your family doesn’t need to be supported for as long a period of time, and will recommend a higher level of consumption. If you choose higher maximum ages of life, ESPlanner will realize that your family needs to be supported for a longer time and will recommend a lower level of consumption. By specifying different maximum ages of life and rerunning the program, you can de-
The Assumptions screen shows you these 7 tabs. This first tab, Nominal Rates of Return, asks you about expected returns on your regular assets and your and your spouse's retirement accounts.

If you are using the Monte Carlo or Upside Investing, the options on this page may be grayed out if they are not applicable. Otherwise, you are able to indicate future changes in these accounts.
termine the sensitivity of the program’s recommendations to this variable. Prudent planning suggests using a very high maximum age of life. This is particularly true for older users of the program, who have demonstrated their greater-than-average longevity by the fact that they are still alive.

The Inflation / Other Variables tab includes the field, “Two can live as cheaply as” economies of shared living variable. When two or more people live together, they can often economize on certain expenses like utilities; i.e., adding an extra person to a home doesn’t necessarily require increasing how much is spent on heating or electricity. You are free to specify a degree of economies in shared living that ranges from none to full. If, for example, you specify that two can live as cheaply as 1, you are specifying complete economies in shared living because having an extra person living in your home will not add to your expenses. If, on the other hand, you specify that two can live as cheaply as 2, you are saying that there are no economic advantages arising from shared living. Although the field refers to “two” people, the value you enter into this field will also be used in considering economies in shared living if there are more than two people living in your household.

Maximum indebtedness refers to the largest sum of money your families can borrow for purposes other than buying a home. If you don’t want to borrow money to smooth your standard of living, simply enter zero. If you currently have non-mortgage debts that exceed your regular assets and you feel you can’t borrow any more funds, you should enter this difference. If you currently have zero or positive regular assets and aren’t able to borrow for purposes other than buying a home, you should make the maximum indebtedness field zero. If you indicate that you can take on debt, the loan rate is assumed to be the same as the rate of return you can earn on your regular assets. If you’d have to borrow at a higher rate, the way to model this is as follows: consider that a 6 percent nominal return on your regular assets and a 3 percent inflation rate, creates approximately a 3 percent real rate at which you can earn asset income, but also a 3 percent real rate that the program charges you on borrowing (i.e., When regular assets are negative.) If you want to specify a higher borrowing rate, do the following: Leave maximum indebtedness at zero. Next increase your regular assets in the regular

This USDA report, “Expenditures on Children by Families,” provides estimates of the cost of raising children from birth through age 17 for major budgetary components.
assets and saving folder by the amount that you want to borrow. But also enter the repayment of that amount of loan as a special expense. If you enter a maximum indebtedness amount, ESPlanner will use some or all of this amount any time it needs it to smooth the standard of living. However, it will pay back this amount to zero by the end of your life.

Allowing debt this way is a different way to fund regular assets than showing positive assets in the Assets and Savings folder. Amounts entered in the **Assets and Savings folder** will be used if needed to smooth the living standard, but will not be repaid by the program.

If you want to save money and don’t want it to be used by the program to smooth consumption, enter those amounts in the Special folder in the **Reserve Fund** panel.

**Percentage transactions** cost incurred in selling homes refers to the real estate commission and other costs your family can expect to incur in selling your home measured as a share of its market value.

The **insurance load** variables allow you to specify the administrative and sales charges associated with your families’ purchase of life insurance and annuity policies. The default values for these loads are 15 percent. If you feel the program’s insurance premiums are too low (high), you should raise (lower) the loads the program is assuming.

The second tab is entitled **Standard of Living Index**. This folder asks you to specify how you’d like your family’s living standard to change through time. You specify these choices by entering values of the standard of living index for each year from the current year through the last year that you or your spouse/partner may be alive. Default values for this index are 100. If you don’t wish your family’s living standard to change over time, simply leave all values at 100. But keep in mind, ESPlanner is going to smooth your consumption, so your lifetime economy and living standard may have nowhere to go but up if you are saving for retirement and borrowing constrained in the present.

The current year index value is 100 and cannot be changed. To enter index values for other years, click on the grid to select the year whose index value you’d like to change. Next enter the value in the
top input field. Finally, click on the Make button. This will enter the index value you specified in the grid for the year you selected.

By setting values of the index in later years to differ from 100, you are specifying how you want your living standard to change relative to its value in the current year. For example, if you specify a living standard index value of 103 for the year after the current year, you are telling the program that you’d like your family’s living standard to be 3 percent higher in the year after the current year than it is in the current year.

If you want your family’s living standard in future years to be less than that in the current year, specify values of the index for those years below 100. For example, if you want your family’s living standard to be 10 percent lower after retirement, enter 90 for all post-retirement years. If you’d like your family’s living standard to grow or decline at a constant rate starting from a given year, first click on that year in the grid, next enter the growth rate, and then click the Grow button. The growth rate you enter can be either positive or negative.

The third tab in the Assumptions Folder is **Child-Adult Equivalency**. This variable refers to the expenditure on a child’s consumption relative to that of an adult needed to provide both the child and the adult the same living standard. For example, suppose that to provide a five year-old with the same living standard as an adult, the five year-old needs to receive 70 percent of the consumption enjoyed by the adult. Then the child-adult equivalency factor at age five should be set at 70.

The fourth tab in the Assumptions Folder is **Tax Assumptions**. Here you can tell the program that Social Security benefits, federal income taxes, or payroll taxes will be raised or lowered in the future and when that change will occur. You can also tell the program the share of the capital income earned on your families’ regular assets that will be taxed as long-term capital gains and the share of municipal bonds that you own.
The fifth tab is for **Benefit** variables. You may enter an assumption about a change in Social Security benefits. You may also enter an assumption about the growth rate of **Medicare Part B** benefits as well as future changes in Medicare Part B benefits.

**Retirement Accounts Folder**

This folder has five tabs. The first solicits the current market values of assets held in your family’s retirement accounts. The second tab asks about contributions to these accounts in the current year as well as in future years. The third tab considers withdrawals from retirement accounts (this age can’t be less than that age of last contribution that you set in the prior screen, so lower the age of last contribution as needed). Specify the age at which your families will begin withdrawing funds from their accounts, the share of their accounts (if any) they wish to annuitize at their initial withdrawal ages, and the share of their non-annuitized retirement account assets that they wish to spend. If you do not want to annuitize any retirement assets, just leave item 3 at 0% and item 4 at 100%.

The program will adhere to your families’ wishes about not spending their retirement account assets to the extent this doesn’t violate the government’s minimum distribution requirements. The program depletes employee tax-deferred retirement accounts first, employer tax-deferred retirement accounts second, and Roth IRA assets last because Roth IRA assets aren’t subject to minimum distribution requirements. *But you can manually rearrange this order, making the ROTH IRA first if you like.* The program calculates minimum distribution requirements based on the new IRS Minimum Distribution Table. Note that the “Smooth Withdrawal” panel adheres to minimum distribution requirements, but it otherwise causes you to withdraw the same amount each year if that is possible by law. You can override the smooth withdraw in the next panel, “Special Withdrawal.”

This Special Withdrawal panel lets you specify non-smooth retirement account withdrawals. The program will smoothly withdrawal your retirement accounts per your specifications on the Smooth Withdrawals screen except in years that you specify special withdrawals on this screen or are forced...
to take larger than desired withdrawals due to minimum distribution requirements. Smoothing recommences after each special withdrawal or required minimum distribution. You might use the Special Withdrawal panel to ask for extra withdrawals as you might need them if you choose to delay Social Security.

The final tab in the Retirement Accounts Folder allows you to design any annuities that you and your spouse/partner may want to purchase when you start retirement account withdrawals. You can specify the share of the annuity to be paid to survivors, the number of years over which annuity payments are guaranteed, the growth of the annuity payment through time, and whether annuity payments will continue after the guarantee period.

You can also specify if the annuity to be purchased will be a fixed annuity or a variable annuity. If the annuity to be purchased will be a fixed annuity, you are asked to specify its expected nominal rate of return. (This is the return apart from mortality.) If the annuity to be purchased will be a variable annuity, you are asked to specify whether the annuity will be invested in stocks or bonds. The program assumes that variable annuities invested in stock are invested in large cap stock and the annuities invested in bonds are invested in long-term government bonds.

Pensions and Annuities Folder
This folder asks about your families’ defined benefit pensions and existing annuities as well as annuities that will be purchased in the future out of regular assets. Defined benefit pensions are lump sum or annual retirement payments made by employers to their employees. The amount of benefits provided to employees through defined benefit pension plans typically depends both on the number of years worked with the employer and the age of the employee at the time he or she begins to receive benefits.

Enter each defined benefit pension separately. Note that you may enter these benefit amounts either in today’s dollars or in dollars. Whichever option you choose, the program will display on the grid
the initial amount of the pension in today's dollars. You can indicate whether the payments will be lump sum or annual, whether and the degree to which they will grow through time, and the percentage of lump-sum and annual benefits to be paid to survivors. Finally, the program asks whether the defined benefit pension is based on employment that was subject to Social Security taxation. If not (which is the case for teachers and other state workers in certain states as well as some members of the military), the program will take that fact into account in calculating Social Security benefits.

The annuity tab lets you specify whether the annuity will grow, whether it has a guarantee period, whether its payments continue after the guarantee period, whether it has a survivor benefit, the size of the survivor benefit, and the degree to which the annuity payment is taxable.

If you are entering an annuity that will be purchased with regular assets in the future, you should treat the purchase price of the annuity as a special expenditure to be incurred in the year the annuity is to be purchased.

The 529 Folder

A “529” plan is established and maintained to allow either pre-paying, or contributing to an account established for paying a student’s qualified higher education expenses at an eligible educational institution. The IRS discusses these plans under Qualified Tuition Plans.

ESPlanner allows you to plan your 529 savings and it will account for the tax implications of this saving. When you click on the 529 plan folder, you will see an input screen like the one below. The screen asks you to specify your future withdrawals and uses this information to determine the contributions to your 529 that you'll need to make to fund these withdrawals.

Although the input area is pretty self-explanatory, a few features may be noted.

- If you want to save 80K for a child's education, you don’t need to withdraw it all at once. Instead of setting one withdrawal goal of 80K in step 5, set the goal for 2020 withdrawal of 20K in step
Specify the amount of your current 529 assets.

Specify the interest rate you expect to earn on this account.

Describe the purpose of this withdrawal.

In Step 4, specify when you want to make the withdrawal. In Step 5, specify the amount to be withdrawn.

Indicate here the year by which you want to fund the withdrawal specified in Step 5.

When you have completed steps 1-6, click “Apply” and it will fill the grid at the right.
5 (funded by 2019); set a second goal for 2021 withdrawal of 20K in step 5 (funded by 2019); set a third goal for 2021 withdrawal of 20K in step 5 (funded by 2019), and so forth for 2022. In this manner you will have established that there will be 80K available (in today’s dollars) in 2019, and ESPlanner will recognize that you are withdrawing 20K during each of four consecutive years.

- Only education-related expenses qualify for the tax exemption. If you must instead use this money for a non-qualified expense, you can describe it as non-qualified in step 6.

**Where do these numbers appear in the ESPlanner report?**

The annual contributions to this goal or goals will appear in the **Special Expenditures** column of the Total Spending report. Given the interest rate that you indicate in step 2, ESPlanner knows how much you will need to save each year in order to reach your goal. You can see that amount in this **Special Expenditures** column (combined with other special expenditures), or separately in the 529 Savings Report. The **529 Report** will show 529 Income (relative to the interest rate on that fund, which you entered in the account set up); Contributions (amounts needed to contribute each year to fund this goal); Unqualified and Qualified withdraws as you indicated you needed these funds; 529 Saving (contributions + income); and 529 Assets (running grand total). These amounts are all reported n today’s dollars.

Because the 529 withdrawals are placed into the Special Expenditures column (in the year you indicated you need them to pay for college), there is of course no need to set up a special withdraw OR a special expense in your Special Expenditures folder. That would be a duplication of expenses.

The Total Income report has a column marked “Special Receipts.” The amount entered in step 5 will appear in this column corresponding to the row for the year you indicated you wanted to withdraw it in step 4.
Finally, as the annual contributions accumulate, they add to your net worth until they are withdrawn. These amounts are indicated for each year in the 529 Plans column in the Net Worth report.

*Primary and Vacation Home Folders*

These folders ask you to specify information concerning your families’ housing finances and any plans you have to change your primary home or vacation home. For each home you must first specify whether you rent or own. If he/she rents, type in the monthly rent and other monthly rental expenses such as parking fees, lawn care, cleaning, and snow removal. If you own your home, you must specify its current market value as well as the annual amounts you pay in property taxes, homeowner’s insurance, and maintenance. Please make sure to enter property taxes in the property tax field, since these tax payments are used in ESPlanner’s tax routines in calculating itemized deductions if it turns out that itemizing deductions is in the subject’s interest.

For each home that your family owns, you must specify the number of loans, including primary and secondary mortgages, personal loans, and other loans. For each loan you need to specify the current balance, the monthly payment, and the number of years remaining on the loan. Note that your monthly mortgage or other loan payments on your homes may include property taxes or homeowner’s insurance. In this case you need to subtract monthly property taxes and homeowner’s insurance from your monthly payment prior to entering the amount in the monthly payment field.

The second and third tabs of the primary and vacation homes folders ask about your families’ moving plans. Your families can specify up to two moves from both their primary and vacation homes as well as when these moves will take place. If you expect to own or rent another primary (vacation) home after a specified move from your primary (secondary) home, indicate they would own or rent by clicking on the appropriate circle next to Rent or Own. If you select Rent, specify the anticipated monthly rental payment and other monthly rental expenses. If you select Own, specify the price of the home you intend to purchase and the percentage of the purchase price they intend to cover as a
downpayment. Also, specify the annual property taxes, homeowner’s insurance, and maintenance expenses they expect to pay on their future home. If you intend to finance a portion of the new home, indicate the length of the anticipated new mortgage.

ESPlanner treats all housing expenses as “off-the-top” expenses in calculating the amount a household can afford to spend through time on its living standard. Housing expenses include rent payments, other rental expenses, mortgage payments, property taxes, homeowner’s insurance, maintenance, and downpayments to purchase new primary and vacation homes less the equity obtained from the sale of primary and vacation homes.

**Real Estate Folder**

This folder has four tabs—General, Mortgages, Expenses, and Receipts—and asks you to enter information about property being used to generate income. In the general tab you are asked to enter information about ownership, purchase price, tax basis, tax losses, and real appreciation rate. This tab also asks you to indicate whether the property is residential or non-residential as well as if and when the property will be sold. The mortgage tab asks for existing or future mortgage information. The next two tabs—expenses and receipts—asks for details about the property’s related costs and income. The information entered in this area of the planner will appear as real estate net cash flow in the main income report, and it will also generate a sheet in the detailed report showing annual information about these income-generating properties. The real estate folder currently allows you to input data for up to five different properties.

**Social Security Benefits Folder**

This folder has four tabs. The first asks about Social Security retirement benefits, for families who are currently receiving benefits, and for retirement benefit collection dates, for families who are not yet
receiving those benefits. The second tab solicits your projected future Social Security covered earn-
ings as well as those of your spouse/partner. Covered Social Security employee wages are those wages
that are subject to Social Security payroll taxation. If future covered wages are the same as those you
entered in the Earnings Folder, click on Copy. Note that all wages from self-employment are covered.
ESPlanner derives this information from the projection of self-employment earnings provided in the
Earnings Folder. The third tab asks for past covered earnings. You can enter these values directly on
the grid and you would get these numbers from your annual Social Security statement. The program
uses past and projected future covered earnings to determine current and projected Social Security
retirement benefits, survivor benefits, spousal benefits, divorcee benefits, and children benefits. The
fourth tab asks you when you intend to begin Medicare.
To see if using “file and suspend” to trigger a spousal benefit will raise your household Social Security income, begin by choosing one partner or the other and then request the spousal benefit at the full age of retirement.

This Social Security input screen asks you to specify the future dates of collection for your retirement benefit as well as Spousal Benefit or Widower Benefit. If you postpone the collection of your Social Security benefit past the full age of retirement, you may be eligible for Spousal Benefit at your full age of retirement. To find out, set your retirement benefit date to age 70 and your spousal or wid-
ower's benefit to the date of your full retirement age (perhaps age 66) and click “Apply.” Begin by selecting one partner to suspend so the other can collect the spousal benefit. If you are eligible for a spousal benefit, you will see it in the report. However, if your full retirement age is, for example, age 66, and you set spousal benefits to begin at age 65, the program and reports will instead show you taking regular retirement benefits at age 65. So be careful that you don’t try to take Spousal Benefits prior to your full age of retirement. You should try various configurations.

Monte Carlo Folder
To activate Monte Carlo simulations, check the box at the top of the screen. The Monte Carlo Folder has two tabs. The first asks you to specify (build) the portfolios you families currently hold or expect to hold in the future. The second asks you to indicate when those portfolios will be implemented with respect to your regular asset holdings, the holdings of your retirement accounts, and the holdings of the retirement account assets of your spouse/partner.

In building portfolios, there are a number of pre-specified assets, including large cap stocks and long-term government bonds, which can be selected. You can also specify your own assets, by clicking New on the first Monte Carlo screen. In defining a new asset, you need to enter the expected nominal return on the asset (which we use to determine its expected real return), risk (variance, i.e., standard deviation squared) relative to the risk (variance) of diversified stock (large cap stock), and its Beta relative to large cap stock, which tells us how the return on your new asset co-varies with (moves with) the return on large cap. These are not numbers that are readily available in exactly the form that is needed by the program. Thus, we have a spreadsheet you can use [linked here] to get the data based on readily available numbers from Morningstar, Yahoo, or your fund prospectus.

You think you have debt? Consider America’s bankruptcy in this article by Laurence Kotlikoff in the New Republic.
Upside Investing

When you are running the program in Upside Investing mode, you tell the program how much you currently have invested in stocks for both regular assets and retirement assets, how much you intend to add to your stock holdings (for both regular and retirement assets) through time, and when you expect to start and stop converting your stocks to safe assets.

The program then sets your living standard floor assuming that all your current and future investments in the stock market are entirely lost. But the program also runs simulations to show you the chances of different upsides—different living standards above the floor—once you start converting your stocks into safe assets.

In Upside Investing mode the program assumes you are investing in just two assets—safe assets and risky assets (the S&P 500), and doesn’t spend any of your risky assets until they have been converted to safe assets. The program asks for each of the two asset pools: how much you have in stocks, how much you will add to your stocks, and when you will begin and finish converting your stocks to safe assets? When you run the program it does two things: First, it establishes a living standard floor assuming your stocks lose all their value. Second, it shows you the probability of experiencing a higher living standard once you start converting your stocks to safe assets.

In the Assets and Saving panel (see screen shot below), you are asked to indicate the percentage of your current regular assets invested in stocks. You are also given a place to indicate how much future investment of regular assets you want invested in stock. When you are not in Upside investing mode, you are not asked about contributing future investments to regular assets (but you are asked about contributions to retirement assets). In Upside mode, you can add to your pool of regular assets through annual contributions—and if you do, the program wants to know what percent of those will go into stocks.
With regard to your retirement assets (see screen shot below) you are also asked about the current ratio of stocks to safe assets as well as the ratio of stocks to safe assets of all future contributions.

In the Assets and Saving panel you are asked to indicate the percentage of your current regular assets invested in stocks. You are also given a place to indicate how much future investment of regular assets you want invested in stock. In Upside mode, you can add to your pool of regular assets through annual contributions—and if you do, the program wants to know what percent of those will go into stocks.
With regard to your retirement assets (see screen shot below) you are also asked about the current ratio of stocks to safe assets as well as the ratio of stocks to safe assets of all future contributions.

Both of these input screens also ask about the year you want to begin converting stocks to safe assets and the year you want to complete this gradual conversion to safe assets. When you run in upside-investing mode, the program converts your stocks into your safe asset starting in the first year of conversion and ending in the last year of conversion. If there are, for example, 20 years of conversion left, the program converts one 20th of your risky assets to safe assets. The following year it converts one 19th, etc.
Both of these input screens also ask about the year you want to begin converting stocks to safe assets and the year you want to complete this gradual conversion to safe assets. When you run in upside-investing mode, the program converts your stocks into your safe asset starting in the first year of conversion and ending in the last year of conversion. If there are, for example, 20 years of conversion left, the program converts one 20th of your risky assets to safe assets. The following year it converts one 19th, etc.

After setting these percentages and dates, you can complete the Upside Investing inputs by telling the program the rate of return you expect to earn on safe assets.

For help reading the Upside Investing report, see the reports section in this help file.

Contingent Plans Folder

ESPlanner permits you to plan explicitly for the possibility of your early death of that or your spouse/partner. To activate contingent planning, click on Contingent on the Profile Bar at top. Note that if contingent planning is not activated, the inputs entered in the program for the case that you and your spouse/partner live to their maximum ages of life will be used as the inputs for the survivor report case that the family or spouse/partner dies before those ages. There is no check box for families who are single. Instead, there is an extra Special Expenditures screen that allows one to enter contingent special expenditures.

There are seven contingency planning screens. The first allows you to copy regular plans as contingent plans. The second allows you to enter contingent retirement ages and earnings. The third allows you to enter contingent special expenditures and receipts. The fourth allows you to enter contingent Social Security earnings and benefit collection dates. The fifth screen allows you to enter contingent contributions to retirement accounts. Finally, the sixth and seventh screens allow you to enter contingent plans for your primary and vacation homes in the event that a spouse/partner dies. You may, for example, plan to buy, sell, rent, or move. Again, these contingencies will have an impact only
in the amount of insurance needed (and annual premium adjustment if needed) listed in the main report, and in the survivor report.

When the program calculates life insurance recommendations it ignores survivors’ liquidity constraints. So in some cases, it may say to itself: If the survivor can borrow, she, for example, will have a higher living standard with no insurance as a widow than when the spouse was alive. So it recommends no insurance. But then, when it comes to telling the widow how to consume, it will recognize that she may be liquidity constrained and shows results that reveal the constraint: a low standard of living.

In such a case, if the survivor can borrow, she will be materially better off each and every year in terms of living standard with the spouse’s death, even if you buy no insurance. But if the survivor can’t borrow, she will be better off on average over her remaining lifetime, but worse off early on and a whole lot better on later in life. Where liquidity constraint is not a problem, the living standard will be better off for every year following the spouse’s death.

ESPlanner considers all possible dates for your death in the survivor report. You don’t have to tell it when you will die. It considers the possibility of your dying in each year all the way to your maximum age of life. Same for the spouse.
The program knows that if one dies at 54, those earnings will stop. In case of a wife as survivor, it considers the wife’s contingent earnings (earnings contingent on the husband dying) to determine how much life insurance the husband needs to buy at 53 to protect her against his dying at 54.

If the husband wants to see what will happen to the wife were he to die at 54 without any contingencies (without saying, “If I die, then she will . . .”), simply run the survivor report (with contingency switch turned off) specifying age 54 as the husband’s age of death.

**Other Inputs and Calculations**

*Advice about the following questions can be found in our online forum.*

- Using ESPlanner to Consider Tax Reforms, e.g., the FairTax
- How Do I Enter My Whole Life/Universal Life Policy?
- How Do I Enter a Variable Rate Mortgage?
- How Do I Model a Reverse Mortgage?
- How Do I Incorporate Non-Deductible IRAs?
- How Do I Consider Converting My Traditional IRA to a ROTH IRA?

**Reports**

**Main Reports**

ESPlanner’s reports are divided into two types: Main Reports and Survivor Reports. The Main Reports assume that you and your spouse/partner (if you are married) live to the maximum ages of life you specify in the Personal Data Folder. The Survivor Reports are provided for married couples only. They show reports for the wife (husband) as a survivor conditional on a pre-specified hypothetical age of death for the husband (wife). When you first click Create Reports, ESPlanner takes these assumed ages
of death for survivors to be your and your spouse/partner’s current ages. You can change these hypothetical ages on the create report screens. All amounts in ESPlanner reports are in today’s dollars.

Main reports are described in more detail below in the order that they appear when generating a new report set. But of course these reports can be viewed in any order, and some reports are typically of primary concern and others are of secondary concern. Most users will find the Annual Recommendation report with its column listing annual “consumption” and related “living standard” to be of primary interest in comparing the results of different data scenarios and assumptions. If you change when you decide to take Social Security, for example, the first thing you’ll probably want to look at is how it changes your living standard through time (i.e., down the living standard trajectory column in the Annual Recommendation). The living standard column in the Annual Recommendation report is, in other words, one of the “bottom line” results that ESPlanner calculates for you.

New users may find it particularly helpful to get a bird’s eye view of the reports (and understand their interrelatedness) by viewing the Main Reports tabs in this order: 1. Look at the Total Income tab to see the sources for this important budgetary starting point. 2. Look at Total Spending tab to see how that total income is spent, in particular how much of it is off the top and how much of it remains as “consumption.” (Make sure in this tab that you are viewing all 10 columns of data.) 3. Look at Regular Assets to see how your Total Income breaks down in terms of spending, taxes, saving, and assets—a very useful snapshot. And finally, 4. Look at the Annual Recommendations tab to see your consumption and related living standard as the “bottom line” of all your income and expenses. If you choose to create a detail report, you can see yet a more thorough breakdown of the amounts that comprise these general numbers.

Current Recommendations Report

This report shows ESPlanner’s saving, consumption, and life insurance recommendations for the current year and compares these recommendations with your family’s actual (referred to as current)
consumption, saving, and holdings of life insurance. This report only shows current year accounting and is not showing you the annual living standard over time, which is the most important piece of information provided. Annual living standard is revealed in the Annual Recommendations Report (described in the next section).

Current saving is the projected increase over the course of the year in regular assets. Current saving is calculated based on your family’s inputs entered on the saving tab in the Assets and Saving Folder. Note that current saving does not include the increase in your household’s housing equity associated with paying off mortgages on your principal residence or vacation home. Mortgage payments, as well as all other housing expenditures (including down payments on the purchase of new homes), are treated as spending. Current saving also excludes contributions to retirement accounts.

Current consumption is calculated as the household’s current total income minus the sum of its current saving, its current special expenditures, its current taxes, its current life insurance premiums (assuming your household purchases the amounts of life insurance recommended), and its current housing expenditures.

Current holdings of life insurance for you and your spouse/partner are calculated based on responses to the life insurance questions in the Estate Folder. Note that these holdings include life insurance purchased on your or your spouse’s/partner’s behalf by employers.

The first column of this report specifies current year recommended amounts for saving, consumption, life insurance premiums, and holdings of life insurance for you and your spouse/partner. The second column specifies the current amounts of these variables. The third column specifies the recommended change in these variables. The values in the third column are calculated by subtracting the values in the second column from those in the first. If the recommended change in a variable, such as saving, is positive, ESPlanner is recommending an increase in that variable. If the recom-
mended change in a variable is shown in parentheses, the program is recommending a reduction in that variable.

**Annual Recommendations Report**

This report provides annual recommendations for saving, consumption, and life insurance. All amounts are in today’s dollars. **This is perhaps the most important of all the reports since it shows annual recommended consumption or discretionary spending.** This is our household bottom line and the number we are most interested in as we compare “what if’s.”

<table>
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<th>Year</th>
<th>Jack's Age</th>
<th>Jill's Age</th>
<th>Consumption</th>
<th>Saving</th>
<th>Jack's Life Insurance</th>
<th>Jill's Life Insurance</th>
<th>Living Standard Per Adult</th>
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Annual saving is the increase over a year in the level of regular assets. It equals a household’s total income (the sum of its non-asset and asset income) less the sum of spending (on consumption, special expenditures, housing expenditures, insurance premiums, and funerals and bequests in excess of home equity used to cover those expenses), retirement account contributions, and taxes. Saving does not include increases in equity arising from paying off mortgages or other loans on your homes. Nor does it include contributions to retirement accounts. In other words, “saving” is not something you must set aside out of your final “consumption” number. Instead, it is that amount the program finds is already available in addition to recommended consumption in your personal economy and is recommending you set aside in order to help smooth consumption. Saving is the “governor” in our household economy and allows us to keep a smooth living standard by adding to regular assets when we have extra and withdrawing from it when we don’t have enough to maintain the smooth living standard.

Consumption (discretionary spending) refers to all expenditures by the household other than special expenditures, taxes, housing expenditures, life insurance premiums, bequests, Medicare Part B, and funerals—in other words, everything you see on the Total Spending Report plus taxes. This accounting is made clear in the Total Spending Report. Recommended annual consumption is calculated to provide a household with the highest sustainable living standard given its economic resources, tax payments, plans for special expenditures, funerals and bequests, retirement account contributions, housing expenditures, maximum indebtedness, and preferences about how you you’re your household’s living standard to change through time. Recommended consumption declines when children reach age 18 and leave the household and when a spouse/partner reaches his or her maximum age of death. But although household consumption declines when children leave the home (or goes up when they are born), the per-adult living standard will stay the same if it is economically possible without going into debt.
If smoothing the household’s living standard would require it to exceed its debt limit, recommended consumption will be reduced to keep the household from going into debt. Once the household is no longer cash constrained, recommended consumption increases. Households can have multiple periods in which they reach their debt limit and are subject to cash constraints. In this case, the household’s living standard will rise through time as it moves from one cash constrained interval to another. The household’s living standard can never be lower in future periods than in the present because the household, assuming it wants a smooth living standard, is always free to save more in the present so as to be able to spend more in the future. In so doing, the household lowers its current living standard and raises its future living standard, with the difference between the two being reduced.

Households can use whole life insurance policies as well as term insurance policies to achieve the recommended amounts of term life insurance. Whole life policies combine term insurance with a savings account. In paying whole life insurance premiums, purchasers of whole life policies are, in effect, purchasing a term insurance policy plus making a contribution to a saving account. The amount of term insurance contained in a whole life policy can be calculated by subtracting the face value of the policy from its cash value.

**Regular Assets Report**

This report traces the evolution through time of the household’s regular assets if it follows the program’s recommendations and the inputs entered in the program end up being correct. All amounts are in today’s dollars. Regular assets do not include home equity, retirement account assets, or reserve fund assets. The change in regular assets from one year to the next equals annual saving. Saving, in turn, equals income minus the sum of three variables—all shown in the report: retirement account contributions, spending, and taxes.

Regular assets will be zero in the last year to which you or your spouse/partner can live given your current ages and maximum ages of life. Household’s spending in that year includes funeral and be-
quests to the extent that these expenditures are not covered by home equity from the sale of primary and vacation homes.

The program uses equity from the sale of homes to cover funerals and bequests only in the last year to which you or your spouse/partner can live. If home equity in that last year exceeds bequests and funeral expenses in that year, excess funerals and bequests will be zero and the household will leave an estate with positive home equity. If the household’s housing equity in that last year is less than funeral and bequest expenses in that year, all of the household’s home equity will be used to cover these expenditures and no housing equity will be left as an extra bequest.

**Income Report**

This report details total household income, which is the sum of non-asset income, special receipts, regular asset income, and retirement account withdrawals. All amounts are in today’s dollars. Non-asset income includes labor income, pension benefits, and Social Security benefits.
Spending Report
This report decomposes total recommended spending into consumption, special expenditures, housing expenditures, life insurance premiums, and funerals and bequests in excess of home equity used to cover those expenses. Special expenditures in a particular year are the total of all special expenditures for that year listed in the Special Folder. Housing expenditures include all housing-related payments on the household’s principal residence and vacation home. These payments include rent, other rental expenses, mortgage payments, property taxes, maintenance and condo fees, homeowner’s insurance, and net home purchases. Life insurance premiums refer to payments needed to purchase ESPlanner’s recommended amounts of insurance for you and your spouse/partner.

Net Worth Report
This report lists the components of your family’s net worth. These are regular assets, home equity, reserve fund, and your and your spouse’s/partner’s retirement account assets.

Detail Report
The detail report provides a breakdown of information contained in the main report. You can see, for example, how what is summarized as “taxes” in the main report really comprises federal, state, and FICA amounts. This report provides a similar detailed breakdown for non-asset income, housing, real estate, retirement accounts, reserve fund, estates, and Social Security benefits.

Non-Asset Income Report
This report lists your family’s annual non-asset income. Non-asset income consists of the sum of labor income, pension income, annuity income, and Social Security benefits. All amounts are in today’s dollars.
Taxes Report

This report shows in today’s dollars the federal income, state income, FICA, and total taxes for your family’s household in every year to which you and your spouse/partner, if married, may live. This report, like all of the main reports, assumes that you (and your spouse/partner, if married) live to your maximum ages of life.

Federal income taxes are calculated taking into account the Earned Income Tax Credit, the Child Care Credit, the low-income Retirement Account Contribution Credit, and the taxation of Social Security benefits. ESPlanner determines whether it is best in each year to itemize deductions or take the standard deduction. This determination is based on the household’s composition and its itemizable deductions, including its mortgage interest payments, its property tax payments, and its state income tax payments. There is also an adjustment for the fraction of regular asset income that accrues in the form of capital gains.

Housing Report

This report shows the household’s housing expenses and housing finances in each year in which you and your spouse/partner may be alive. The information in this report reflects responses to the questions in the Primary and Vacation Home Folders and combines information on both homes. The report indicates for each year the amount spent on rent, other rental expenses, mortgage payments, property taxes, maintenance and condo fees, homeowner’s insurance, and net home purchases. When net home purchases show up in parentheses, it means that the expenditure is negative; i.e., you will receive income, on balance, from the sale of your homes.

The sum of the aforementioned housing expenses constitutes total housing expenditures, which are also shown in the report. It also indicates the amount of home equity and the outstanding mortgage
balance. Note that the values of reported housing expenses and finances will vary from one year to
the next as, for example, you pay off your mortgages or changes homes.

### Real Estate Report

This report shows receipts, expenses, mortgage payments, net purchases and cash flow, mortgage balance and equity for income properties.

### Retirement Accounts Report

This report traces the evolution through time of your and your spouse/partner’s retirement accounts. All amounts are in today’s dollars. The change in retirement accounts balances from one year to the
next equals retirement account saving. Retirement account saving, in turn, equals retirement account asset income plus retirement account contributions net of withdrawals. Retirement account contributions are of three types—employee contributions, employer contributions, and Roth IRA contributions. Withdrawals of retirement account assets take into account user-inputted preferences concerning the share of non-annuitized retirement account assets to be spent. These preferences are honored to the extent they do not violate minimum distribution requirements. When funds are withdrawn from retirement accounts by the program, the program first withdraws employer retirement account assets, then employee retirement account assets, and finally Roth retirement account assets. Roth assets are preserved as long as possible because they are not subject to minimum distribution requirements.

**Reserve Fund Report**

This report shows, in today’s dollars, current and future values of the family’s reserve fund for all the years that you and your spouse/partner are potentially both alive. Once either you or your spouse/partner dies, the reserve fund is treated as part of the estate provided to the survivor; i.e., survivors are not assumed to hold or accumulate a reserve fund.

Reserve fund saving equals the sum of income earned on the reserve fund’s assets and net reserve fund contributions less payments from the reserve fund to be used to help defray taxes on reserve fund income. Note that these payments from the reserve fund that are designated to help cover taxes on reserve fund income do not necessarily fully cover the tax obligations arising from the reserve fund’s taxable income.

**Estate Reports**

This report shows how much you or your spouse/partner will leave as an estate to surviving household members. For couples, an additional report—the Joint Estate report—indicates the joint estate
that you or your spouse/partner will leave if they both pass away in the same year. Your regular estates and that of your spouse/partner are calculated by adding the household’s net worth, the reserve fund, and the term life insurance of the relevant decedents and then subtracting from this total the special bequests, funeral expenses, and estate taxes of these decedents. The estate reports also show the retirement account estate—the amount of retirement account assets left by the decedent to survivors.

The regular and retirement account estates provide the means to sustain the living standard of surviving household members. Surviving household members refer to the surviving spouse/partner (if the decedent is married) and surviving children under age 18.

*Household Social Security Benefits Report*
This report shows the household’s combined net social security benefit. This net benefit is the sum of the household head’s net social security benefit, the spouse/partner’s net social security benefit, and children’s net social security benefit. The “net” refers to the amount of benefit available after the application of social security’s earnings test.

*Social Security Benefits Report*
This report is provided for you or your spouse/partner. It decomposes your social security net benefit into the sum of your social security retirement benefits, social security spousal benefits, and social security widower benefits less the earnings test reduction—the reduction in your social security benefits arising from the application of social security’s earnings test.
**Children’s Social Security Benefits Report**

This report indicates the social security benefits that are estimated to be payable to your children based on the earnings records of parents who are either deceased or are collecting retirement benefits. It decomposes children’s social security net benefits into the sum of their dependent and survivor benefits less the reduction in these benefits arising from social security’s earnings test.

**Survivor Reports**

Survivor reports are provided for spouses/partners. They show how spouses/partners will fare in the event that their companions pass away before their maximum ages of life. The survivor reports of the surviving spouse/partner are generated based on an assumed age of death of the decedent. The first time you run ESPlanner, the survivor reports are computed assuming that each spouse/partner dies at his or her current age. Survivor reports start in the first year a spouse/partner is a widow or widower, which is the year after his or her spouse/partner dies.

**Survivor’s Annual Recommendations Report**

This report shows recommendations for saving, consumption, and life insurance for surviving spouse/partners. All amounts are in today’s dollars.

Saving in a particular year equals the survivor’s total income less taxes and spending. Spending refers to expenditures on consumption, special expenditures, housing, insurance premiums, funerals and bequests in excess of home equity used to cover those expenses, and contributions to retirement accounts. Saving does not include increases in home equity arising from paying off mortgages or other housing loans.

This report shows recommended annual holdings of term life insurance for surviving spouses/partners for each year in which they may be alive. The life insurance premiums indicated in this report
reflect typical term life insurance rates prevailing in the United States. These rates may differ from those being charged by your family’s insurance company. In addition, in the case of whole life insurance policies, the insurance premiums will be higher because in purchasing a whole life policy one is, in effect, purchasing both a term life insurance policy and opening up a savings account; i.e., a whole life policy represents the combination of a term insurance policy and a savings account.

Households can use whole life insurance policies as well as term insurance policies to achieve the recommended amounts of term life insurance. Whole life policies combine term insurance with a savings account. In paying whole life insurance premiums, purchasers of whole life policies are, in effect, purchasing a term insurance policy plus making a contribution to a saving account. The amount of term insurance contained in a whole life policy can be calculated by subtracting the face value of the policy from its cash value.

*Survivor’s Regular Assets Report*

This report traces the evolution through time of the surviving household’s regular assets assuming it the program’s recommendations and the input assumptions end up being correct. All amounts are in today’s dollars. The change in regular assets from one year to the next equals saving. Saving, in turn, equals total income minus the sum of spending and taxes.

Regular assets will be zero in the last year that the surviving spouse/partner is alive assuming that he or she lives until his or her maximum age of life. The survivor’s spending in the year that he or she reaches his or her maximum age of life includes the survivor’s funeral and bequest to the extent that these expenditures are not covered by equity from the sale of the survivor’s homes.

ESPlanner uses equity from the sale of your homes to cover these expenditures in the last year that the survivor may be alive. If the survivor’s housing equity in that last year exceeds bequests and funeral expenses in that year, excess funerals and bequests will be zero and your household will leave an estate with positive housing equity. If the survivor’s housing equity in that last year is less than
funeral and bequest expenses in that year, all of the survivor’s home equity will be used to cover these expenditures and no housing equity will be included in the survivor’s estate.

**Survivor’s Income Report**
This report details the survivor’s total income. All amounts are in today’s dollars. Total income is broken down into the survivor’s non-asset income, special receipts, and the survivor’s regular asset income.

**Survivor’s Spending Report**
This report decomposes the survivor’s total recommended spending between consumption, special expenditures, housing expenditures, life insurance premiums, contributions to retirement accounts, and funerals and bequests in excess of home equity used to cover those expenses. Special expenditures in a particular year are the total of all special expenditures for that year listed for the survivor in the Special Folder listed under Contingent Planning. Housing expenditures include all housing-related payments on your household’s principal residence and vacation home. These payments include rent, other rental expenses, mortgage payments, property taxes, maintenance and condo fees, homeowner’s insurance, and net home purchases. Life insurance premiums refer to payments needed by the survivor to purchase ESPlanner’s recommended amounts of insurance.

**Survivor’s Non-Asset Income Report**
This report lists the survivor’s annual non-asset income in each future year in which the survivor may be alive. Non-asset income includes labor income, annuity income, pension income, and Social Security benefits. Total non-asset income in a particular year is the sum of labor income, pension income, and Social Security benefits in that year.
Survivor’s Taxes Report
This report shows in today’s dollars federal income, state income, FICA, and total taxes for the survivor in every year to which the survivor may live. Federal income taxes are calculated taking into account the Earned Income Tax Credit, the Child Care Credit, the low-income Retirement Account Contribution Credit, and the taxation of Social Security benefits. ESPlanner determines whether it is best in each year to itemize deductions or take the standard deduction. This determination is based on the household’s composition and its itemizable deductions, including its mortgage interest payments, its property tax payments, and its state income tax payments. There is also an adjustment for the fraction of regular asset income that is accruing in the form of capital gains.

Survivor’s Housing Report
This report shows the survivor’s housing expenses and housing finances in each year to which the survivor may live. The report combines information provided about your primary and vacation homes. For example, the value of rent in a particular year is the sum of the rental payments, if any, you specified that you would make in that year on your primary home and vacation home. Similarly, the value of mortgage balance indicates the sum of the outstanding mortgage balances on your primary and vacation homes.

The report indicates for each year the amount the survivor will spend on rent, other rental expenses, mortgage payments, property taxes, maintenance and condo fees, homeowner’s insurance, and net home purchases. The sum of these housing expenses constitutes the survivor’s housing expenditures, which are also shown in the report. It also indicates the survivor’s home equity and mortgage balance. Note that the values of reported housing expenses and finances will vary from one year to the next as, for example, the survivor pays off mortgages or change homes. The report also displays the combined mortgage balance and home equity values of primary and vacation homes.
Survivor’s Retirement Accounts Report
This report traces the evolution through time of the survivor’s retirement account assets. All amounts are in today’s dollars. The change in retirement accounts from one year to the next equals retirement account saving. This saving equals income earned on retirement account assets plus retirement account contributions less retirement account withdrawals.

Survivor’s Estate Report
This report shows how much the survivor will leave as an estate if he/she dies prior to his/her maximum age of life. The regular estate is calculated by adding the survivor’s net worth and the term life insurance and then subtracting from this total the special bequests, funeral expenses, and estate taxes of these decedents. The estate reports also show the retirement account estate - the amount of retirement account assets left to the survivor’s heirs in the event that the survivor passes away in a given year.

Survivor’s Social Security Benefits Report
This report shows the survivor’s net social security benefit. This net benefit is the sum of the survivor’s social security retirement benefit, the survivor’s survivor benefits, the survivor’s mother/father benefits, and the survivor’s children’s benefits less that reduction in benefits arising from applying Social Security’s earnings test.

Monte Carlo Reports
ESPlanner is able to use Monte Carlo simulation to provide a very powerful statistical analysis to help you understand how risk factors into or changes how we view what is otherwise an average or ideal trajectory of our retirement income and living standard. We can tell the program in the assumptions inputs that we expect to earn an 8.5% return on our retirement investments. But of course the chance
of this 8.5% recurring year after year without variation is not likely, to say the least. So although we might get 8.5% on average over a long period of time, what might our living standard and sources of income really look like as we live through this variation each year from now until we die? This is what the Monte Carlo reports help us to understand.

The Monte Carlo feature in ESPlanner Plus provides three main types of reports: distribution reports, range reports, and trajectory reports. Each type of report provides a different kind of information and a different way of understanding how your economic situation might play out in the future. Although Monte Carlo simulation has recently become a standard practice in financial planning, with ESPlanner, the results are yet more meaningful than in traditional financial planning because the Monte Carlo analysis is coupled with the dynamic capabilities of the software. ESPlanner uses dynamic programming in its Monte Carlo simulations to show the variability of a household’s living standard in each future year. Based on the inherent variation of your implemented assets, ESPlanner generates 500 random paths (more in the high precision mode) and applies its dynamic programming algorithm to each path and then tabulates the results. The dynamic programming takes account of future levels of taxable income. Consequently, its simulations show that a household’s living standard will not necessarily soar if its portfolio value doubles because of the extra taxes it will have to pay, nor plummet if its portfolio value drops because of the concomitant decline in its taxes.

Note well that the Monte Carlo reports in ESPlanner provide information—not just about a single pool of retirement assets as do most Monte Carlo reports in other software—but rather something much more valuable: the distribution and trajectory of living standard. Why is this more valuable information? It’s more valuable because retirement assets are only a part of what supplies us with living standard. Indeed, with pensions and Social Security in the mix, we want to learn about the upside and downside of our living standard (discretionary spending) not merely one pool of assets.
Consider First the Distribution Reports

These reports—whether they apply to living standard, regular assets or retirement account assets—show the distribution probability in any given year for living standard, income level, or asset value. In other words, of the 500 different standards of living or income or asset values generated for any given year, this report shows five of them across the distribution from 5th (lowest) to 95th (highest). Seeing all 500 numbers for the year 2040 (for example) would probably be more information than most people need, not to mention the spreadsheet report would be very wide. So these percentiles mark five important stops in the full range of what you would expect to see in the entire set of 500. ESPlanner shows the 5th, 25th, 50th, 75th, and 95th percentile instead of showing all 500 numbers for each year. As we might recall from reading reports about our test taking in school, to be in the 5th or 95th percentile is to be in a group that lies at the extremes of “low” and “high.” The 50th percentile represents the middle number (i.e., 250) among the 500 that were generated for that year.

One thing to notice about the distribution reports is that the numbers read from left to right in any given row always get larger. We may be able to find a very stable asset so that they stay close to the same, but typically they go up from low to high as we look across the row from left to right. This is because as we look across a row, we are seeing five representatives of the 500 numbers that were generated for a particular year presented to us from low to high.

How do we use this information? What do the percentile reports show us about living standard, income, or account assets? They help us to see that if we were to live 500 lives (holding the same data and assumptions), we can not usually expect to have the same living standard or income or level of assets in any particular year. In other words, to the extent that our living standard depends on an uncertain market, there is going to be variation. How much variation? Well, look at a particular year and read across the row. You’ll see five numbers sorted from low to high that represent the range of what is possible for that year. If you want to know what is probable, use the range report discussed below. The less dependent you are on the varying market, the less variation you will see from left to
These two charts were created using the same data, except the top one uses a portfolio of 80% large cap stocks like in the S&P 500, and the bottom chart only uses 20% large cap stocks. The TIPS are Long-term inflation protected bonds. These are charts based on distributions, so we see the possible variation in any year as we look across the chart. With more stocks, we have more possible gain and loss; with the bottom chart there is not so much variation (which is good), but we pay the price of less potential gain and loss.

In the top chart we see that in the years 37-40 a distribution of living standard that ranges from about 20,000-115,000. In the bottom chart, those same years show a distribution from about 40,000-50,000. Different people will prefer different economic pictures.
right in a given year. Pick a year in the future and look at your distribution report. You’ll see that in 500 different lives lived with that same data you could experience a range or variation of possible living standards or income levels or assets accrued (depending on which report you view). If one’s income or assets is dependent on volatile investments and thus a lot of uncertainty, one can expect to see a great deal of variation from low to high in the percentile ranking _across any given year_. If, on the other hand, one’s income and assets are not subject to much uncertainty—say one invests heavily in Inflation Protected Government Securities—then one may not see much difference or even any at all between the 5th percentile number and the 95th percentile number in a given year.

Keep in mind that with percentile distribution reports, what is interesting is the amount of variation we see in any given year. So we typically read these reports looking at specific rows. We pick a year, and then we examine the numbers across that row to note the amount of variation there is from low to high. If we value stability and predictability over uncertainty and variation, then we want to see less variation as we scan across the row. Unfortunately, in order to get less variation, we have to accept lower overall numbers. Because the potential for high returns on investments is typically associated with high volatility and uncertainty, we see a somewhat predictable correlation between the variation we might experience in a given year and the amount of money we have expressed as living standard, income, or accrued assets. With this report, we can begin to test our tolerance levels for variation and see the trade-offs between risk and reward played out in our living standard, income, and assets.
In other words, to the extent that our living standard depends on an uncertain market, there is going to be variation. How much variation? Well, look at a particular year and read across the row. You’ll see five numbers sorted from low to high that represent the range of what is possible for that year.

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<th>Jill's Age</th>
<th>All TIPS</th>
<th>Projected</th>
<th>5th</th>
<th>25th</th>
<th>50th</th>
<th>75th</th>
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**Consider Next the Range Reports**

These reports—whether they apply to living standard, regular assets or retirement account assets—take account of the probability that consumption or income lies within a certain probability range such as 50-75% or 75-100% of the recommended amount. In other words, if one’s recommended living standard range has but a 0-25% chance of being available to us, then that’s not very good odds. The term “recommended” here should not be misunderstood. This is the term ESPlanner uses to describe a living standard or income level that is entailed or consequent of all the data inputs in the program. Recommended means “what is anticipated if all returns were average;” it simply means that given the data it has, a certain average income or living standard is the mathematical result. Obviously one can raise the living standard by using volatile, high flying asset classes to boost annual return on investments. A particular “recommended” living standard or consumption level will result. But the Monte Carlo analysis will reveal that the probability of seeing such a good return on average, year after year, is quite unlikely. (And in the distribution reports discussed above, one will see a wide range in variation for each year). Again the objective of this analysis is to provide the user with feedback so that he or she can balance risk and reward, probability of success against the level of that success. If you want to see a very broad snapshot of the entire range report, use your mouse to select the empty cells at the bottom of each of the eight columns in the chart. Then click on the “auto sum” [ Σ ] button at the top in the Excel menu bar. When the totals for each column appear in the selected cells, with the cells still selected, click on the chart wizard icon at the top in the Excel menu bar and use the default “clustered column” chart to create a chart. (Just open the chart wizard and click “finish” in that simple order). If you want to see the same bar chart that ignores early years, just select those years by dragging with the mouse and also select one row of empty cells at the bottom of the columns. Then click the auto sum button, and then the chart wizard and then “finish” to see a chart of just the remaining twenty years (for example).
Finally, Consider the Trajectory Reports

These reports are given not in percentile ranking or probability ranges like the other two kinds of reports because the emphasis here is not on variability or probability of the scenarios in any given year, but rather on the entire trajectory or life span of the portfolio—and for this we must view a whole column. Like the other two kinds of reports, the trajectory report has generated behind the scenes 500 different economic lives lived with the one data set. The Trajectory reports are showing just five

In a trajectory report, the lines representing a lifetime trajectory are ranked according to the overall value of the line. Thus, they may cross paths and even end out of order so to speak. The “low” trajectory, in the top graphic, actually ends below the “very low” trajectory—though overall the low trajectory was a slightly better value over its life. Trajectory reports reveal how much any one line, no matter how high or low, might vary as it unfolds and any given year is irrelevant because it is the line as lifetime whole, not any one year, that is organizing the chart. The lines in the distribution report are always evenly distributed from top to bottom, though the final spread may be wide or narrow. This is because in each year, the chart reflects an even distribution of results. Trajectory reports are read to compare horizontal (lifetime) variation; distribution reports are read to compare vertical (annual) distribution.
of these 500 paths (as columns). They are not average paths, but rather five very particular paths generated from among the total of the 500 generated by the software. In order to determine which five to show us, the software calculates the internal value of each of the 500 paths and ranks the paths or columns and arranges them beside each other from lowest to highest. It may be interesting to note that the internal value of a given path or column is not just the sum of the numbers in that path, but the present value of each of these numbers. In other words, each number down the path from early in

This chart illustrates the kind of custom chart that can be created from the Excel Monte Carlo reports. This particular chart is simple to create. It represents an aggregate picture of the probability of living standard ranges in the Monte Carlo report. 1) Select the first empty row at the bottom of the columns in the probability report. 2) Sum the columns by clicking the autosum icon (Σ) in Excel. 3) With the sum results still selected, click on the chart wizard in Excel and create a simple bar chart.
life to the year we die is “weighted” to reflect its present value in relation to whether the number is, early or late in our life. The main point, however, is that these five columns represent the 500 columns or paths generated (again, showing you all 500 would be overwhelming) and represent the 5th (very low), 25th, 50th, 75th, and 95th (very high) percentile ranking of the columns or paths relative to each other (described in the column header as very low to very high). We use the “very low” and “very high” designations so as to not confuse them with the distribution reports. Remember, any particular number in a row in the trajectory may even seem out of place if a number in a left row is greater than a number to its right in the same row. But these trajectories are arranged as columns, and any one row across columns is a minor factor relative to the value of the column as a whole trajectory set.

The point of displaying these trajectory columns is to indicate that even though you may do well, on average, with respect to the returns you earn over your lifetime and end up with a very high level of lifetime consumption, you’ll experience a lot of variability in your living standard down that column path from year to year because your returns will be high in some years and low in others, even though they’ll generally be high, if you are looking at the “high” or “very high” column. In a nutshell, the trajectory reports show that doing well or poorly over your lifetime with respect to the returns you earn, doesn’t mean you’ll do well or poorly each and every year.

Whereas the distribution report emphasizes variation across a given year and thus we read it one row at a time, in the trajectory report we are focusing on the change or variation down a path or column and comparing it to one of the other four paths generated by the same data set. Thus we tend to look first at a trajectory report by scanning down the column to see how much variation there is as we scan down the column in each of the five represented trajectories or paths.

It may also be interesting to note that if we do read across the row of a particular year, jumping from one path (column) to the next, we should not expect to always see the number be larger in the corresponding year of a different path even when that path is to the right, thus indicating that the path,
taken as a whole, is a better path than to the one to its left. It other words, it may be better or worse in any given year, but taken as a whole, the path or trajectory to the right will be of higher value than the column to its left. Consider, for example, that you are viewing the 250th path out of the 500 paths generated (the median path or middle column). If the software were to show you path number 249 (which it does calculate but doesn’t show you) you might see a much higher number in year 2041. But taken as a whole, path (column) number 250 is slightly more valuable than path number 249. Again, there is no reason to view all 500 paths. Five is sufficient for most users to get the point.

**Tips on Reading Monte Carlo Reports**

The paragraphs above are intended to help you sort the tables into three main groups. You should understand that distribution and range reports are showing you how any given year can vary. The trajectory reports are a bit different because they reveal how five sampled lives (columns) might look. Whereas in a distribution report, each number as you look across a row gets larger because the report is showing the user progressively higher percentile ranking on a given year, with the trajectory report, anything can happen in any particular row, but the column or life—taken as a whole—is going to hold the 5th, 25th, 50th etc. percentile in terms of its overall weighted value as a column even if the end of the tail or column on the highest rank column happens by chance to come in as low in the final year—it can still be the best column as a whole.

Just as the per-person living standard is typically the “bottom line” on the annual recommendation report, so too, when examining Monte Carlo reports, one might typically start by viewing the trajectory living standard report. Begin by scanning down each of the five trajectory columns and note how they vary from year to year reading down a particular column. You may highlight (select with your mouse)
the data in the five columns and click the “chart wizard” icon at the top of the Excel screen. Create a simple line chart to see how the columns appear in a graphic format. Stretch the chart proportionately, width and height, so that you can see it better. Note that in trajectory reports, the lines may cross as they grow to the right. This never happens in a distribution report since distribution data (by definition) is organized and presented as the exact distribution year by year instead of by the overall trajectory value of the column. A distribution viewed as a line chart will always show evenly spaced threads that get progressively wider apart as they move to the right through time. A less risky portfolio will show less difference between the high and the low thread. A higher risk economy will show more distance between the 5th and 95th percentile as it grows to the right through time. The “take away” from this distribution or range table or chart is that it shows you the variation and probability range that is possible in any given year. The “take away” on the trajectory reports is that seeing five samples of 500 lives lived makes it clear that doing well over all does not mean that you’ll do well every year. As someone once said, just because the river has an average depth of four feet, that doesn’t mean it’s safe to walk across!

Of course ESPlanner makes it possible for you to change variables—asset classes, timing on withdrawals including Social Security, and many other factors that will change the contours of these Monte Carlo reports. We are typically asked to make a personal decision about the trade off between the spread of our distribution ratio and the corresponding level of living standard. As the spread collapses and grows more narrow (and safer), the living standard tends to go down with it. For an instructive comparison, build and implement an all Large Caps portfolio and compare it to an all Inflation-protected Treasury Securities (TIPS) portfolio.

**Spending Behavior**

Monte Carlo reports show the results based on the spending behavior you choose in the Spending Behavior tab: aggressive, cautious, or conservative. If you choose to spend aggressively (i.e., assume that you’ll always earn the average return on your portfolio) then these reports assume that you’ll
spend all the extra money recommended in a great year and suffer through the down years. In real lived practice, a typical user might tend to save a little from those good years and use it in the bad years. So if you choose the “spend cautiously” option, the program assumes that you’ll spend in a way that assumes you’ll earn a real return (i.e., inflation adjusted) that is halfway between the mean and zero. If you check the option to spend conservatively, the program assumes that you’ll spend in a way that assumes you’ll always earn a zero real return (i.e., merely keep pace with inflation) on your portfolios.

This set of options to adjust spending/draw down rates is what’s called expected utility maximization. It takes into account users’ risk aversion and natural tendency to adjust in midstream. But as shown in the aggressive spending option, users should see that basing their spending on expected average returns year after year in the manner described by the aggressive option will lead to a lot of downside living standard risk as they age if they invest in risky assets.

**Upside Investing Report**
All amounts are in today’s dollars.

Upside investing assumes you spend your risky assets (stocks) only after they are converted to safe assets. Upside Investing treats the stock market like going to the casino. You gamble only what you are prepared to lose, and you spend winnings only after you leave the casino.

The table below shows your living standard floor, and this “floor” assumes your risky assets lose all value. Your living standard is your discretionary spending per household member (adjusted for economies in shared living and the relative costs of children).

The table also shows you the chances your living standard will be above the floor once you start converting your stocks to safe assets.
The table’s percentile values tell you the fraction of the time your living standard will be at the indicated value or lower. For example, if the 25th percentile value for your living standard is $50,000 in 2030, this means that 25 percent of the time, your 2030 living standard will be $50,000 or less.

The percentile values equal the floor value before you start converting your risky to safe assets. Before converting, you always experience your floor living standard. While converting, you add to your safe assets, permitting higher ongoing spending and the percentile values rise. After converting your living standard is set by the amount that’s been converted and the percentile values are again constant.

In the Assets screen, you were asked to enter the safe rate of return you expect to earn. No asset is perfectly safe, but U.S. Treasury Inflation Protected Securities or TIPS (also referred to as inflation-indexed bonds) are generally viewed as the safest asset in which to invest. Historically, TIPS have yielded 2.73% after inflation. (This is an annual average real return.) But we recommend a more conservative assumption for the safe real return, namely 2% or lower.
The Upside investing table's percentile values tell you the fraction of the time your living standard will be at the indicated value or lower. For example, if the 25th percentile value for your living standard is $48,123 in 2015, this means that 25 percent of the time, your 2015 living standard will be $48,123 or less.

The percentile values equal the floor value before you start converting your risky to safe assets. Before converting, you always experience your floor living standard. While converting, you add to your safe assets, permitting higher ongoing spending and the percentile values rise. After converting your living standard is set by the amount that’s been converted and the percentile values are again constant (more or less).
This Upside Investing table gives a little different picture of the same results. Here the living standard is presented as a percentage or probability that the living standard will be at the floor value or above. So the number at right indicates that in the years 2011-2014 there is no chance that the living standard will be more than 1.25% above floor value. But after the retirement assets are withdrawn, the probabilities go up (in this case at least) as this investor begins to reap some benefit from having exposure to stocks. This is the “upside” of his or her investment strategy.
The program assumes your risky assets are invested in a diversified portfolio of large cap stocks. Historically, the S&P 500 has yielded 8.64% after inflation. (This is an annual average real return.)

If, after examining these results, you feel you are willing to forego some of your upside to have a higher living standard floor, change your share of assets invested in stocks and rerun the program. Also, try different assumptions about how much you will add to your stock holdings as well as when you will begin to convert your stocks to safe assets and when you will be fully converted.

**On Reading the Charts**

Finally, a word about the graphic charts. The charts can be viewed in the first tab of the Monte Carlo reports, but they can also be easily replicated by selecting the data (with your mouse) in the columns on the table you want to chart, and then using the chart wizard to create a new chart. Perhaps the best chart to use for percentile distribution data or the trajectory data is the simple line chart without data markers. If you include the “recommended trajectory” column in your selection when you make these charts, you’ll see one line that is your smooth recommended amount. This line represents a constant average return on investments—not something that would ever really happen. You may judge the security or dependability of your “recommended trajectory” by seeing how this constant average aligns with the other lines on the chart. You might also note, however, that although a line maps near the 25th percentile, it still represents a trajectory that creates a living standard greater than
what you experience now, though quite a bit less than the recommended trajectory. Some might view this as “success” even though it falls significantly below the recommended trajectory. In other words, falling a full 25 percentile points below what is recommended may still represent a gradually rising living standard trajectory in some borrowing constrained scenarios. Reading the Monte Carlo charts and tables can involve very subjective readings. By creating charts and comparing scenarios, you can begin to get a feel for what advantage or disadvantage investing in different asset classes provides. You may discover that you don’t have to take as much investment risk as you thought in order to achieve an acceptable lifetime living standard.

**Distribution of Living Standard Report**
This report shows, for each year, the percentile distribution of your living standard given your current and projected portfolio holdings. Specifically, it shows, for each year, the levels of consumption below which 5 percent, 25 percent, 50 percent, 75 percent, and 95 percent of living standard outcomes fall.

**Ranges of Living Standard Report**
This report shows, for a given year, the chances that your family’s living standard falls within specified ranges of the projected level of consumption.

**Distribution of Income Report**
This report shows, for each year, the percentile distribution of your family’s income given your family’s current and projected portfolio holdings. Specifically, it shows, for each year, the levels of income below which 5 percent, 25 percent, 50 percent, 75 percent, and 95 percent of income outcomes fall.

**Ranges of Income Report**
This report shows, for a given year, the chances that income falls within specified ranges of the projected level of income.
Distribution of Regular Assets Report
This report shows, for each year, the percentile distribution of your family’s regular assets given your family’s current and projected portfolio holdings. Specifically, it shows, for each year, the levels of regular assets below which 5 percent, 25 percent, 50 percent, 75 percent, and 95 percent of regular assets outcomes fall.

Ranges of Regular Assets Report
This report shows, for a given year, the chances that regular assets fall within specified ranges of the projected level of regular assets.

Distribution of Retirement Account Assets Report
This report shows, for each year, the percentile distribution of your and your spouse/partner’s retirement account assets given your and your spouse/partner’s current and projected retirement account portfolio holdings. Specifically, it shows, for each year, the levels of retirement account assets below which 5 percent, 25 percent, 50 percent, 75 percent, and 95 percent of retirement account asset outcomes fall.

Ranges of Retirement Account Assets Report
This report shows, for a given year, the chances that retirement accounts assets falls within specified ranges of the projected level of retirement account assets.
Living Standard Trajectory Report
The program ranks the 500 Monte Carlo simulations based on the present value of lifetime consumption. This report shows the trajectory of your family's living standard arising in the five simulations with the 5th, 25th, 50th, 75th, and 95th lowest present values of lifetime consumption.

Income Trajectory Report
The program ranks the 500 Monte Carlo simulations based on the present value of lifetime consumption. This report shows the trajectory of your family's income arising in the five simulations with the 5th, 25th, 50th, 75th, and 95th lowest present values of lifetime consumption.

Regular Assets Trajectory Report
The program ranks the 500 Monte Carlo simulations based on the present value of lifetime consumption. This report shows the trajectory of your family's regular assets arising in the five simulations with the 5th, 25th, 50th, 75th, and 95th lowest present values of lifetime consumption.

Retirement Accounts Trajectory Report
The program ranks the 500 Monte Carlo simulations based on the present value of lifetime consumption. This report shows the trajectory of your family's retirement account assets arising in the five simulations with the 5th, 25th, 50th, 75th, and 95th lowest present values of lifetime consumption.
ESPlanner PRO

Report Designer
Financial professionals who purchase ESPlanner-PRO have access to some added program features. The PDF “Report Designer” allows planners to customize the output to PDF reports. Choose reports from the left and add them to the report list on the right. Save the design and you’ll have this report set up for future use.

To access the report designer, click on the “Report Designer” button at the top-right of the program shortcut bar. From there, you’ll be able to build and save report designs that meet the needs of your clients. You can save up to 10 report styles.

Planner Information
ESPlanner PRO also offers a way to customize your client reports by including your company information and logo. Choose Help/Customize and then open the tab labeled “Planner Information” and fill in the information on this panel. To replace our logo with your company logo, click the Report Logo button that you see on this screen.
The PDF “Report Designer” allows planners to customize the output to PDF reports. Choose reports from the left and add them to the report list on the right. Save the design and you’ll have this report set up for future use.
Glossary of Terms

Age Finder—this button, located at the top of the application, activates a window that shows the year in which you and your spouse/partner are specific ages.

Annual Benefit—the annual payments made by defined benefit pension plans
Annuities—a financial security whose payments continue as long as the owners of the asset survive.

Assets—titles of ownership of real properties or financial securities.

Asset Income—refers to the interest, dividends, capital gains, and other capital income earned on investments in real property and financial assets.

Bonds—titles of ownership of loans made to individuals, businesses, or the government

Borrowing Constraint—the maximum amount the household can borrow.

Build Portfolios—to access this screen, select Monte Carlo from the Folder List. If Monte Carlo doesn’t appear on the Folder List, activate on the Family Information screen at the bottom right. The Build Portfolio screen asks you to specify up to 10 different portfolios that you and your spouse/partner may wish to hold either now or in the future, either in Regular Assets or Retirement Accounts. Once you have built your family’s portfolios, click Implement Portfolios to specify the particular portfolios you want to hold in regular assets and in your and your spouse’s/partner’s retirement accounts in each future year.

Cash Value of Life Insurance—the amount of money saved in the course of paying life insurance premiums on a whole life insurance policy. Whole life policies combine term insurance and a saving account. The cash value of whole life policies refers to the size of the policy’s savings account.

Child-Adult Equivalency—the ratio of the expenditure on a child of a specific age needed to provide the same living standard as that of an adult

Family List—this is a list of all families, which is display to the left of the Family Information screen. If you click the name of the family on family list, you will see a listing of all of the profiles for that family. If you click on a profile, you’ll see Inputs, which you can click to access the input folders, as well as reports that have been already been computed and are available for viewing.

Create Reports—click on this button to get a menu of reports that you can generate. Select the ones you want to generate and then click Compute.
Consumption—refers to all expenditures by the household other than special expenditures, housing expenditures, taxes, and insurance premiums. Recommended annual consumption amounts are calculated by ESPlanner in light of your household’s current and future economic resources, its current and projected future demographic composition, its current and future projected spending on housing, special expenditures, taxes, and life insurance premiums, and your preferences about how you’d like your living standard to change over time and in the event of the death of the household head or spouse/partner.

Consumption Smoothing—refers to the financial planning approach of ESPlanner that determines the amounts of saving and life insurance necessary to smooth the household’s living standards before and after retirement as well as in the event of the death of the household head or spouse/partner. In smoothing the household’s living standard over time and in the event of early death of the head or spouse/partner, ESPlanner takes into account the households’ economic resources, living standard preferences, special expenditures, estate plans, housing plans, demographic composition, and economic assumptions. ESPlanner also takes into account economies in shared living.

Contingent Labor Earnings—the amount of money that one spouse/partner expects to earn in the event of the death of the other spouse/partner.

Contingent Planning—forming plans for the event that the household head’s spouse/partner may die.

Contingent Special Expenditures—are special expenditures that will occur if the household head or spouse/partner passes away. Contingent special expenditures are set equal to regular special expenditures unless their values are changed in the Contingent Plans Folder.

Current Earnings—money earned this year from working.

Current Saving—the amount you intend to save this year according to your responses on the first three pages of the Saving Folder.

Custom—this button allows you to enter your professional information.
Defined Benefit Pensions—employer-provided pension benefits. The size of these pensions is defined by a formula that typically depends on age, years of service, age of retirement, and past earnings.

Defined Benefit Pension Plan—an employer pension plan that provides a defined benefit.

Defined Contribution Accounts—tax-favored, employer-provided retirement accounts in which the employer defines how much is to be contributed for each employee. Defined contribution accounts generally permit employees to make matching contributions and to choose, within certain limits, how contributions to their accounts are invested.

Dollars—refers to valuing dollars received or spent at prevailing prices with no adjustment for inflation; i.e., it refers to the actual number of dollars paid or received.

Downpayment—is the amount of money that one needs to have to add to borrowed funds in order to receive a mortgage (to borrow money to purchase a house). A typical downpayment might be 20 percent of the purchase price of the home.

Economic Assumptions—the set of inputs entered in the Economics Folder.

Earnings Growth Rate—the annual rate at which earnings will grow in today’s dollars.

Economic Resources—includes the household’s current net worth (including employment-related retirement accounts) and its current and future labor earnings, pension benefits, social security benefits, and inheritances.

Economies in Shared Living—the fact that people living together can jointly consume a variety of goods, like television viewing, heat, lighting, housing space, and thus enjoy a higher standard of living than if they lived separately. This is often referred to as “Two can live more cheaply than one.”

Employee retirement account contributions—Contributions made by employees and the self employed to tax-favored accounts.
Employer retirement account contributions—Contributions by employers to an employee’s tax-favored account

Estate—money left to surviving household members in the event of the death of the household head or spouse/partner. It is calculated as the household’s net worth (at the time of the decedent’s death) plus ESPlanner’s recommended term value of life insurance on the decedent, less the decedent’s special bequest and funeral expenses.

Excess Funerals and Bequests—the excess in the household last year of home equity over its funerals and bequest expenditures

401K Accounts—tax-favored, employer-provided retirement accounts, which are also called defined contribution accounts

Face Value of Life Insurance—the amount of money paid by life insurance policies in the event of the death of the insured.

Fixed Annuity—an annuity whose payments do not vary with the performance of the assets in which the annuity premium is invested.

Folder List—this is a list of the input folders. To access the Folder List for a particular profile, double click on the family’s name in the Family List, select the profile, and then either a) double click Inputs or b) click Edit in the Profiles tool bar.

Funeral Expenses—the amount of money you must pay to be buried or cremated. Typical funeral expenses appear to be around $5000, but to be safe, you should budget for a higher amount.

Future Earnings—money earned in future years from working

Guide—clicking on the Guide button activates instructions for entering data on each screen

Home Equity—The difference between the market value of your primary and vacation homes and mortgages and other housing loans outstanding on these homes
Household Members—the household head and spouse/partner (if the head is married) plus all children age 18 and under.

Housing Expenditures—include all housing-related payments on the household’s principal residence and vacation home. These payments include rent, mortgage payments, property taxes, homeowner’s insurance, maintenance, and condo fees. The release of housing equity through the sale of a home is treated as a negative housing expenditure.

Housing Finances—refers to the financial variables associated with homes. These variables include the value of homes, the size of outstanding mortgages or other loans used to purchase homes, and the amount of monthly mortgage and other housing loan payments.

Implement Portfolios —this screen allows you to tell the application which of your portfolios you wishes to hold in your and your spouse’s/partner’s regular assets and retirement accounts in each future year.

Income—the receipt of money. Income may reflect money earned from working, money received from pension or social security, money earned on past investments, or money received as gifts or inheritances.

Inflation—the general rise in prices between any two periods

Inflation Indexation of Pension Benefits—the degree to which pension benefits are adjusted each year for inflation.

Insurance Load—the administrative and sales charges included in insurance premiums.

IRA—Individual Retirement Account

Joint Estate—the estate that the household head and spouse/partner will leave to surviving household members if they die at the same time.
Joint Estate Report—a report provided for married couples that shows their combined estate if both spouse/partners die in the same year.

Keogh Accounts—tax-favored retirement accounts of the self-employed

Labor Earnings—money earned from working

Labor Income—refers to labor earnings of the household head or spouse/partner.

Large Cap Stocks—stocks of the 500 largest companies in the U.S.

Liabilities—amounts of money that have been borrowed or are otherwise owed.

Life-Cycle Model—the economic theory of saving and insurance that predicts that households will seek to smooth their living standards over time and preserve that living standard in the case of the early death of a spouse/partner or partner.

Life Insurance—an insurance policy that is purchased with insurance premiums and pays money on the death of the insured. Life insurance policies can be term or whole. Whole life policies combine term life insurance and a savings account.

Life Insurance Premiums—payments needed to purchase ESPlanner’s recommended amounts of term insurance for you and your spouse/partner (if you are married).

Living Standard—refers to the household’s consumption of goods and services. ESPlanner’s recommended levels of saving and insurance permit household members to enjoy the same standard of living over time and in the event of the death of the household head or spouse/partner. In making its recommendations, ESPlanner takes into account economies in share living—the fact that two people living together can jointly consume a variety of goods, like television viewing, heat, lighting, housing space, and thus enjoy a higher standard of living than if they lived separately.

Lump Sum Benefit—a one-time payment made by a defined benefit pension plan.
Main Reports—reports that assume you and your spouse/partner (if married) live to their maximum ages of life

Maximum Age of Life—is the oldest age to which you or your spouse/partner (if you are married) might live. The maximum age of life should not be confused with the expected age of life—the age at which people, on average, die. In choosing the maximum age of life, one should err on the high side. The reason is that ESPlanner will plan for your household’s consumption only up to the latest year that you or your spouse/partner might be alive (although it will take into account the need to maintain the living standards of surviving children through age 18 as well as cover future special expenditures). The lower you set the maximum ages of life for yourself and your spouse/partner, the less ESPlanner will recommend that you save. Note that, if you are married, you are free to set different maximum ages of life for yourself and your spouse/partner. You are also free to change the maximum ages of life as often as you’d like and rerun the program. In this way, you can determine the sensitivity of ESPlanner’s recommendations to the assumed maximum age of life. For example, if you first try age 95, but think that may be a bit high, rerun the program with age 90 and compare results. Remember, running out of money is no fun, so choose a conservative (i.e., high) value for the maximum age of life.

Maximum Indebtedness—the most your household can borrow for purposes other than purchasing a house.

Minimum Distribution Requirements—the requirement that tax-deferred retirement account assets be withdrawn at a minimum rate based on the age of the account holder.

Monte Carlo—when you activate Monte Carlo simulations at the bottom right of the Family Information screen, ESPlanner adds a Monte Carlo input folder to the Folder List. When you click on this folder, you’ll see a screen with two tabs, Build Portfolios and Implement Portfolios.

Monte Carlo Simulations—each Monte Carlo simulation is based on three sequences of rates of return—one for the annual returns on the household’s regular assets, one for the annual returns on
your retirement account assets, and one for the annual returns on the your spouse/partner’s retirement account assets.

Each sequence consists of a rate of return drawn at random for each year starting from the current year and continuing through the last year to which your or your spouse/partner could live. The random draw of a rate of return on your regular assets in a particular year is based on the probability distributions of the returns on the assets held in that year’s regular asset portfolio. Similarly, the random draw of the return earned on your retirement account assets in a particular year is based on the probability distributions of the rates of returns on the assets held in that year’s retirement account portfolio. And the random draw of the return earned on the spouse/partner’s retirement account assets in a particular year is based on the probability distributions of the rates of returns on the assets held in that year’s spouse/partner’s retirement account portfolio.

In the simulation, the program starts in the current year, determines the household’s spending based on its current regular and retirement account asset positions, and then uses the first-year’s random returns to determine how much regular and retirement account capital income the household will earn over that year. Given this capital income and the household’s labor and other income and given current year spending, the program determines the household’s asset positions at the beginning of the next year.

These asset positions determine, in turn, the next year’s spending. The reason is that the program’s dynamic programming calculates in advance the spending levels the household will have for all possible levels of regular and retirement account assets in each year. (Incidentally, these calculations take into account the higher taxes that come with higher levels of capital income.) Proceeding in this manner generates a time path of spending, net worth, and total income for the particular simulation being run. By running a large number of these simulations, one can determine percentile distributions of spending, total income, and net worth in each future year.

**Mortgage Balance**—is the outstanding unpaid amount of money borrowed to purchase a home.
Mortgage Payments—are the regular payments made to pay off a mortgage loan on a home.

Mutual Funds—investment vehicles that pool together the money of many contributors and use them to invest in diversified portfolios, typically of financial assets. For example, a bond fund is a mutual fund that invests in an array of bonds, whereas a stock fund is a mutual fund that invests in various stocks.

Net Home Purchases—The amount spent on purchasing primary and vacation homes net proceeds (net of the sales costs) from the sale of your primary and vacation homes.

Net Worth—the sum of regular assets, retirement account assets, reserve fund assets, and home equity.

Non-asset Income—is the income exclusive of capital income earned on regular or retirement account assets. It includes labor earnings, defined benefit pension income, special receipts, and social security income.

Pension Income—refers to pension benefits received by the household head or spouse/partner.

Percentage of Capital Income Earned on Regular Assets that is Received as Capital Gains—fraction of the income that you earn on your regular assets that is earned in the form of capital gains.

Percentile Distribution—shows the value of a random variable such that a specified percentage (e.g., 75 percent) of draws of that variable fall below that value.

Portfolio—the allocation of a household’s financial assets among stocks, bonds, and other financial securities

Rate of Return on Regular Assets—the pre-tax nominal rate of return earned on regular assets. If Monte Carlo simulations are activated, this rate of return is calculated automatically for each year and equals the expected return on the regular assets portfolio specified for that year.

Primary Home—is the household’s principal residence.
Rate of Return on Retirement Account Assets — the pre-tax nominal rate of return earned on retirement account assets. If Monte Carlo simulations are activated, this rate of return is calculated automatically for each year for you and your spouse/partner separately and equals the expected return on the retirement account portfolio specified for that year for your and your spouse’s/partner’s respective retirement accounts.

Profit Sharing Accounts — employer-provided retirement accounts in which the amount contributed by employers for each employee is a percent of the company’s profits.

Rate of Inflation — the percentage increase in the economy’s overall level of prices between one year and the next.

Regular Earnings — the labor earnings of the household head or spouse/partner when both the household head and spouse/partner are alive.

Regular Assets — these are assets other than those in retirement accounts. These assets are not tax-favored.

Regular Asset Income — the interest, dividends, capital gains, and other forms of capital income earned on regular assets.

Regular Estate — the sum of regular assets, life insurance, and the reserve fund.

Rent — is the amount paid on a regular basis to occupy a dwelling, which one doesn’t own.

Reserve Fund — these are assets your family either currently has or wants to accumulate, but doesn’t want to spend. The program assumes that the reserve fund is converted to regular assets and spent by survivors once you or your spouse/partner passes away.

Retirement Accounts — these are assets held in 401(k), IRA, Roth IRA, SEP, Keogh, and similar saving accounts.

Retirement Account Contributions — annual contributions to retirement accounts.
Retirement Age—is the age at which you (or your spouse/partner) will stop earning money from working. This may be an older age than the age at which you formally retire from your current job, since you may decide to work in another job thereafter. You are free to enter different retirement ages for yourself and, if you are married, your spouse/partner. If you are married, you can also specify different retirement ages in the case that your spouse/partner dies before his or her maximum age of life.

Roth IRA—an individual retirement account contributions to which are not deductible and withdrawals from which are not taxable.

Saving—the increase over time in a household’s net worth. ESPlanner defines saving to be the household’s total income minus its expenditures on consumption, special expenditures, housing expenditures, and life insurance premiums.

Social Security Benefits—include Social Security retirement benefits, survivor benefits, divorcee benefits, children’s benefits, mother and father benefits, and spousal benefits.


Social Security Covered Earnings—labor earnings subject to Social Security taxation.

Social Security Divorsee Benefits—Social Security benefits available to the divorsee of a Social Security covered worker when the marriage in question lasted for 10 or more years.

Social Security’s Earnings Test —The reduction in Social Security benefits arising from having labor earnings above the exempt amount of such earnings

Social Security Income—refers to the amount of social security benefits received by the household head or spouse/partner.

Social Security Retirement Benefits—Social Security benefits received by workers in retirement
Social Security Spousal Benefits—Social Security benefits that one spouse/partner can receive in retirement based on the Social Security earnings record of the other spouse/partner

Social Security Survivor Benefits—Social Security benefits available to widows or widowers and their children based on the Social Security earnings records of their deceased former spouse/partner

Special Bequest—the amount of money that the household head or spouse/partner wish to leave upon their death. Special bequests may reflect the desire to bequeath to children and other relatives, friends, charities, foundations, etc. Note that ESPlanner automatically recommends amounts of life insurance and saving that will provide surviving household members with the same living standard in the event of the death of the head or spouse/partner as they enjoyed prior to the death. It also takes into account the need of surviving household members to pay for survivors’ special expenditures.

Special Expenditures—are unusual payments that need to be made in a particular year. Examples of special expenditures are college tuition payments, nursing home care for parents, weddings for children, and computers. Special expenditures do not include downpayments for the purchase of a primary or vacation home. These downpayments should be specified in the Primary and Vacation Home Folders. The also do not include mortgage and other housing loan payments. Special expenditures do include all non-housing loan repayments.

Special Receipts—are unusual receipts of income expected to be received in a particular year. Examples of special expenditures are college tuition payments, nursing home care for parents, weddings for children, and computers.

Spending—the sum of money spent on consumption, special expenditures, housing expenditures, and life insurance premiums.

Standard of Living Index—this index lets you tell ESPlanner that you’d like your families to have a lower or higher living standard in old age. Living standard refers to the consumption of goods and services of household members adjusted for the number of household members. The program auto-
matically recommends more consumption spending when there are more mouths to feed, so don’t use this index for that purpose. Use this index only if you want to have the program generate a higher or lower living standard, per equivalent adult, in the future. The current year’s value of the index is always 100. Setting a value, for example, of 110 (90) in a future year will tell the program to attempt to achieve a 10 percent living standard increase (decrease) in that year. The program will do so to the extent doing so does not require violating the assumed borrowing constraint.

**Stocks**—titles of ownership to corporations

**Surviving Household Members**—the surviving spouse/partner and surviving children age 18 and under

**Survivor’s Living Standard**—the consumption of goods and services of surviving household members. ESPlanner’s recommended levels of saving and insurance permit surviving household members to enjoy the same standard of living as they enjoyed prior to the death of the household head or spouse/partner. In determining the size of the estate that surviving household members must inherit in order to maintain their former living standard, ESPlanner takes into account economies in share living—the fact that two people living together can jointly consume a variety of goods, like television viewing, heat, lighting, housing space, and thus enjoy a higher standard of living than if they lived separately.

**Survivor Reports**—Reports for a surviving wife (husband) of a married couple conditional on a hypothetical age of death of the husband (wife) specified by clicking the Show Reports button. The first time this button is clicked, the hypothetical ages of death for each spouse/partner are taken to be their current ages. After reports based on these hypothetical ages are shown, one can change these ages by returning to the Folder Menu and clicking the Show Reports button. You will now have the option to change these hypothetical ages of death.

**Survivors’ Special Expenditures**—special expenditures of the household that will be made in the contingency that either the household head or spouse/partner or both are deceased. Examples of special expenditures are college tuition payments, nursing home care for parents, weddings for children, and
computers. Survivors’ special expenditures do not include downpayments for the purchase of a primary or vacation home. These downpayments should be specified in the Housing Folder.

**Targeted Liability Approach**—refers to the traditional method of financial planning in which households are asked to specify the amounts of income or expenditure they seek to have or to make in retirement and in the event of the death of the household head or spouse/partner. In asking households to set such income targets (which then represent a so-called liability for which one needs to save), the traditional approach to financial planning asks households, in effect, to plan for themselves. Why? Because choosing the correct target is a highly complicated decision for which the traditional targeted liability approach provides no real guidance beyond some arbitrary rules of thumb. For example, households that are asked how much money they’d like to have to spend in retirement might respond with too high a figure that would require drastic cuts in the household’s current living standard to achieve. Other households might specify too low a figure leaving them planning to have a much higher living standard in the present than the future. If, as economic science suggests, households seek to smooth (equalize) their living standard at all ages or have their living standards change gradually through time, then ESPlanner is the correct tool to use because it determines directly how much each household needs to save and spend on life insurance policies to guarantee (subject to its assumed income and other data) either a constant or gradually changing living standard through time and in the event of the death of a spouse/partner.

**Taxes**—the sum of federal income taxes, state income taxes, and FICA taxes

**Tax-Deferred Retirement Accounts**—401(k), 403(b), traditional IRA, and other retirement accounts in which contributions are tax deductible and withdrawals are taxable.

**Term Life Insurance**—the amount of pure life insurance purchased either through a term life insurance policy or as part of a whole life insurance policy.

**Term Insurance Policy**—a pure life insurance policy that does not combine elements of saving.

**Term Value of Life Insurance**—the amount of pure life insurance purchased either through a term insurance policy or as part of a whole life insurance policy.
Terminal Year—the last year in which either the household head or spouse/partner is alive.

Today’s Dollars—expressing a future receipt or payment in today’s dollars means abstracting from future increases in the price level (inflation) in specifying the amount in question. Also refers to the adjustment of future expenditures or income for the general increase in the price level that will occur between the current year and the year the expenditures are made or the income is received. For example, if the household head expects to earn $11,000 next year, but the price level next year is projected to be 10 percent higher than it is now, we say that, measured in today’s dollars, the head’s earnings next year are $10,000 ($11,000 divided by 1.1). Another expression for today’s dollars is “today’s dollars;” i.e., expressing $11,000 earned next year in today’s dollars yields $10,000.

Total Income—non-asset income plus special receipts plus regular asset income

Transactions Cost in Selling Your Homes—brokerage and other selling costs measured as a percent of the sale value of your home.

Tutorial—the tutorial can be accessed by clicking on the Tutorial button at the top right of the application. The tutorial is displayed in your browser. It starts with a simple example and then adds to the example. The free Acrobat Reader 8.0 or higher is required.

Whole Life Insurance Policy—a life insurance policy that combines the purchase of pure term insurance with the act of saving. Indeed, whole life policies can be viewed as the combination of a term insurance policy and a saving account. Whole life policies have a face value, indicating the amount to be paid in the event of the death of the insured. They also have a cash value, which is the amount of the policy’s saving account. The difference between the face value and cash value of a whole life policy is the policy’s pure term insurance.

Vacation Home—is the household holiday or vacation residence and occupied by the household only part of a year.

Variable Annuity—an annuity whose return varies based on the assets in which the premium used to purchase the annuity is invested.
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