Title

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putpdf — Create a PDF file

Description

`putpdf` writes paragraphs, images, and tables to a PDF file. It may also be used to format each object added. This allows you to automate exporting and formatting of, for example, Stata estimation results and also generate various reports based on those results. Below, we provide a summary of the commands to add and format the content of a PDF file.

`putpdf begin` creates the PDF file for export.

`putpdf paragraph` adds a new paragraph to the active document. The newly created paragraph becomes the active paragraph. All subsequent text or images will be appended to the active paragraph.

`putpdf text (`*exp*`)` adds content to the paragraph created by `putpdf paragraph`. *exp* may be a valid Stata expression (see **[U] 13 Functions and expressions**) or a normal string.

`putpdf image` *filename* embeds a portable network graphics (`.png`) or JPEG (`.jpg`) file in the paragraph. *filename* is the path to the image file. It may be either the full path or the relative path from the current working directory.

`putpdf table` *tablename* creates a new table that can be identified by its assigned name, *tablename*, for future modifications. Tables may be created from several output types, including the data in memory, matrices, and estimation results; see *Output types for tables* for a complete list and a description of each type.

`putpdf pagebreak` adds a page break to the document, placing subsequent content on the next page of the document.

`putpdf sectionbreak` adds a new section to the active document that starts on the next page. It lets you vary the page size, orientation, margins, and other properties of the pages within a single document. This formatting of sections is most useful when you want to mix portrait and landscape layouts.

`putpdf describe` describes the current PDF file or a table within the current PDF file.

`putpdf save` closes and saves the PDF file.

`putpdf clear` closes the PDF file without saving the changes.

Quick start

Create a document in memory on which subsequent contents are added

```
putpdf begin
```

Declare a paragraph to be added to the document and center the paragraph

```
putpdf paragraph, halign(center)
```

Append the text "This is paragraph text" to the paragraph declared above and format the text as bold

```
putpdf text ("This is paragraph text"), bold
```

Add a table named `tbl1` with three rows and four columns to the document

```
putpdf table tbl1 = (3,4)
```

Set the content of the cell on the first row and second column of the above table as "Cell 2" and align the text to the right

```
putpdf table tbl1(1,2) = ("Cell 2"), halign(right)
```

Add a table named `tbl2` with variable names and estimated coefficients after `regress`

```
putpdf table tbl2 = etable
```

Add a PNG image saved as `myimg` to the document

```
putpdf paragraph
putpdf image myimg.png
```

Save the document in memory to disk as `myfile.pdf`

```
putpdf save myfile.pdf
```

Syntax

Create document for export

```
putpdf begin [, document_options]
```

Add paragraph to document

```
putpdf paragraph [, paragraph_options]
```

Add text to paragraph

```
putpdf text (exp) [, text_options]
```

Add image to paragraph

```
putpdf image filename [, image_options]
```

Add table to document

```
putpdf table tablename = (nrows, ncols) [, table_options]
putpdf table tablename = data(varlist) [if] [in] [, varnames obsno
    table_options]
putpdf table tablename = matrix(matname) [, nformat(%fmt) rownames colnames
    table_options]
putpdf table tablename = mata(matname) [, nformat(%fmt) table_options]
putpdf table tablename = etable[(#1 #2 ... #n)] [, table_options]
putpdf table tablename = returnset [, table_options]
```

Add content to cell

```
putpdf table tablename(i,j) = (exp) [, cell_options]
putpdf table tablename(i,j) = image(filename) [, cell_options]
putpdf table tablename(i,j) = table(mem_tablename) [, cell_options]
```

Alter table layout

```
putpdf table tablename(i,.), row_col_options
putpdf table tablename(.,j), row_col_options
```

Customize format of cells or table

```
putpdf table tablename(i,j), cell_options
putpdf table tablename(numlist_i,.), cell_fmt_options
putpdf table tablename(.,numlist_j), cell_fmt_options
putpdf table tablename(numlist_i,numlist_j), cell_fmt_options
putpdf table tablename(.,.), cell_fmt_options
```

Add page break to document

```
putpdf pagebreak
```

Add section break to document

```
putpdf sectionbreak [, section_options]
```

Describe current document

```
putpdf describe
```

Describe table

```
putpdf describe tablename
```

Close and save document

```
putpdf save filename [, replace]
```

Close without saving

```
putpdf clear
```

tablename specifies the name of a new table. The name must be a valid name according to Stata's naming conventions; see **[U] 11.3 Naming conventions**.

document_options	Description
pagesize(*psize*)	set page size of document
landscape	set document orientation to landscape
font(*fspec*)	set font, font size, and font color
halign(*hvalue*)	set horizontal alignment of document
margin(*type*, #[*unit*])	set page margins of document
bgcolor(*color*)	set background color

paragraph_options	Description
`font(`*fspec*`)`	set font, font size, and font color
`halign(`*hvalue*`)`	set paragraph alignment
`valign(`*vvalue*`)`	set vertical alignment of characters on each line
`indent(`*indenttype*`, #[`*unit*`])`	set paragraph indentation
`spacing(`*position*`, #[`*unit*`])`	set spacing between lines of text
`bgcolor(`*color*`)`	set background color

text_options	Description
`nformat(%`*fmt*`)`	specify numeric format for text
`font(`*fspec*`)`	set font, font size, and font color
`bold`	format text as bold
`italic`	format text as italic
`script(sub|super)`	set subscript or superscript formatting of text
`strikeout`	strikeout text
`underline`	underline text
`bgcolor(`*color*`)`	set background color
`linebreak[(#)]`	add line breaks after text
`allcaps`	format text as all caps

image_options	Description
`width(#[`*unit*`])`	set image width
`height(#[`*unit*`])`	set image height
`linebreak[(#)]`	add line breaks after image

table_options	Description
`memtable`	keep table in memory rather than add it to document
`width(#[`*unit*`|%]|`*matname*`)`	set table width
`halign(`*hvalue*`)`	set table horizontal alignment
`indent(#[`*unit*`])`	set table indentation
`spacing(`*position*`, #[`*unit*`])`	set spacing before or after table
`border(`*bspec*`)`	set pattern and color for border
`title(`*string*`)`	add a title to the table
`note(`*string*`)`	add notes to the table

cell_options	Description
`append`	append objects to current content of cell
`rowspan(#)`	merge cells vertically
`colspan(#)`	merge cells horizontally
`span(#1, #2)`	merge cells both horizontally and vertically
`linebreak[(#)]`	add line breaks into the cell
cell_fmt_options	options that control the look of cell contents

row_col_options	Description
`nosplit`	prevent row from breaking across pages
`addrows(# [, before|after])`	add # rows in specified location
`addcols(# [, before|after])`	add # columns in specified location
`drop`	drop specified row or column
cell_fmt_options	options that control the look of cell contents

cell_fmt_options	Description
`margin(`*type*`, #[`*unit*`])`	set margins
`halign(`*hvalue*`)`	set horizontal alignment
`valign(`*vvalue*`)`	set vertical alignment
`border(`*bspec*`)`	set pattern and color for border
`bgcolor(`*color*`)`	set background color
`nformat(`*%fmt*`)`	specify numeric format for cell text
`font(`*fspec*`)`	set font, font size, and font color
`bold`	format text as bold
`italic`	format text as italic
* `script(sub|super)`	set subscript or superscript formatting of text
`strikeout`	strikeout text
`underline`	underline text
`allcaps`	format text as all caps

*May only be specified when formatting a single cell.

section_options	Description
`pagesize(`*psize*`)`	set page size of section
`landscape`	set section orientation to landscape
`font(`*fspec*`)`	set font, font size, and font color
`halign(`*hvalue*`)`	set horizontal alignment of section
`margin(`*type*`, #[`*unit*`])`	set page margins of section
`bgcolor(`*color*`)`	set background color

fspec is

fontname [, *size* [, *color*]]

fontname may be any supported font installed on the user's computer. Base 14 fonts, Type 1 fonts, and TrueType fonts with an extension of `.ttf` and `.ttc` are supported. TrueType fonts that cannot be embedded may not used. If *fontname* includes spaces, then it must be enclosed in double quotes. The default font is `Helvetica`.

size is a numeric value that represents font size measured in points. The default is `11`.

color sets the text color.

bspec is

bordername [, *bpattern* [, *bcolor*]]

bordername specifies the location of the border.

bpattern is a keyword specifying the look of the border. Possible patterns are `nil` and `single`. The default is `single`. To remove an existing border, specify `nil` as the *bpattern*.

bcolor specifies the border color.

unit may be `in` (inch), `pt` (point), `cm` (centimeter), or `twip` (twentieth of a point). An inch is equivalent to 72 points, 2.54 centimeters, or 1440 twips. The default is `in`.

color and *bcolor* may be one of the colors listed in the table of colors in the *Appendix*; a valid RGB value in the form *### ### ###*, for example, `171 248 103`; or a valid RRGGBB hex value in the form *######*, for example, `ABF867`.

Output types for tables

The following output types are supported when creating a new table using `putpdf table` *tablename*:

(*nrows*, *ncols*) creates an empty table with *nrows* rows and *ncols* columns. A maximum of 50 columns in a table is allowed.

`data(`*varlist*`)` [*if*] [*in*] [, `varnames obsno`] adds the current Stata dataset in memory as a table to the active document. *varlist* contains a list of the variable names from the current dataset in memory. `if` and `in` may be used to restrict the data to be added to the table.

`matrix(`*matname*`)` [, `nformat(%`*fmt*`) rownames colnames`] adds a matrix called *matname* as a table to the active document. The elements of the matrix are formatted using `%`*fmt*. If `nformat()` is not specified, then `%12.0g` is used.

`mata(`*matname*`)` [, `nformat(%`*fmt*`)`] adds a Mata matrix called *matname* as a table to the active document. The elements of the matrix are formatted using `%`*fmt*. If `nformat()` is not specified, then `%12.0g` is used.

`etable` [`(`$\#_1$ $\#_2$ ... $\#_n$`)`] adds an automatically generated table to the active document. The table may be derived from the coefficient table of the last estimation command, from the table of margins after the last `margins` command, or from the table of results from one or more models displayed by `estimates table`.

Note that if the estimation command outputs $n > 1$ coefficient tables, the default is to add all tables and assign the corresponding table names *tablename*`1`, *tablename*`2`, ..., *tablename*$_n$. To specify which tables to add, supply the optional numlist to `etable`. For example, to add the first and third tables from the estimation output, specify `etable(1 3)`. A few estimation

commands do not support the `etable` output type. See *Unsupported estimation commands* in [P] **putdocx** for a list of estimation commands that are not supported by `putpdf`.

returnset exports a group of Stata return values to a table in the active document. It is intended primarily for use by programmers and by those who want to do further processing of their exported results in the active document. *returnset* may be one of the following:

returnset	Description
escalars	All ereturned scalars
rscalars	All returned scalars
emacros	All ereturned macros
rmacros	All returned macros
ematrices	All ereturned matrices
rmatrices	All returned matrices
e*	All ereturned scalars, macros, and matrices
r*	All returned scalars, macros, and matrices

The following output types are supported when adding content to an existing table using `putpdf table` *tablename*`(`*i*`,` *j*`)`:

`(`*exp*`)` writes a valid Stata expression to a cell. See **[U] 13 Functions and expressions**.

`image` *filename* adds a portable network graphics (`.png`) or JPEG (`.jpg`) file to the table cell. *filename* is the path to the image file. It may be either the full path or the relative path from the current working directory.

`table(`*mem_tablename*`)` adds a previously created table, identified by *mem_tablename*, to the table cell.

The following combinations of *tablename*`(`*numlist*$_i$`,` *numlist*$_j$`)` (see **[U] 11.1.8 numlist** for valid specifications) can be used to format a cell or range of cells in an existing table:

tablename`(`*i*`,` *j*`)` specifies the cell on the *i*th row and *j*th column.

tablename`(`*i*`, .)` and *tablename*`(`*numlist*$_i$`, .)` specify all cells on the *i*th row or on the rows identified by *numlist*$_i$.

tablename`(., `*j*`)` and *tablename*`(., `*numlist*$_j$`)` specify all cells in the *j*th column or in the columns identified by *numlist*$_j$.

tablename`(., .)` specifies the whole table.

Options

Options are presented under the following headings:

Options for putpdf begin

`pagesize(`*psize*`)` sets the page size of the document. *psize* may be `letter`, `legal`, `A3`, `A4`, `A5`, `B4`, or `B5`. The default is `pagesize(letter)`.

`landscape` changes the document orientation from portrait to landscape.

`font(`*fontname* [`,` *size* [`,` *color*]]`)` sets the font, font size, and font color for the document. Note that the font size and font color may be specified individually without specifying *fontname*. Use `font("",` *size*`)` to specify font size only. Use `font("", "",` *color*`)` to specify font color only. For both cases, the default font will be used.

`halign(`*hvalue*`)` sets the horizontal alignment of the document within the paragraphs, images, and tables. *hvalue* may be `left`, `right`, or `center`. The default is `halign(left)`.

`margin(`*type*`, #`[*unit*]`)` sets the page margins of the document. *type* may be `top`, `left`, `bottom`, or `right`, which identify the location of the margin inside the document. The margin value `#` is measured in inches unless another *unit* is specified. This option may be specified multiple times in a single command to account for different margin settings.

`bgcolor(`*color*`)` sets the background color for the document.

Options for putpdf paragraph

`font(`*fontname* [`,` *size* [`,` *color*]]`)` sets the font, font size, and font color for the text within the paragraph. Note that the font size and font color may be specified individually without specifying *fontname*. Use `font("",` *size*`)` to specify font size only. Use `font("", "",` *color*`)` to specify font color only. For both cases, the default font will be used.

Specifying `font()` with `putpdf paragraph` overrides font settings specified with `putpdf begin`.

`halign(`*hvalue*`)` sets the horizontal alignment of the text within the paragraph. *hvalue* may be `left`, `right`, `center`, `justified`, or `distribute`. `distribute` and `justified` justify text between the left and right margins equally, but `distribute` also changes the spacing between words and characters. The default is `halign(left)`.

`valign(`*vvalue*`)` sets the vertical alignment of the characters on each line when the paragraph contains characters of varying size. *vvalue* may be `baseline`, `bottom`, `center`, or `top`. The default is `valign(baseline)`.

`indent(`*indenttype*`, #[`*unit*`])` specifies that the paragraph be indented by # *units*. *indenttype* may be `left`, `right`, or `para`. `left` and `right` indent # *units* from the left or the right, respectively. `para` uses standard paragraph indentation and indents the first line by # inches unless another *unit* is specified. This option may be specified multiple times in a single command to accommodate different indentation settings.

`spacing(`*position*`, #[`*unit*`])` sets the spacing between lines of text. *position* may be `before`, `after`, or `line`. `before` specifies the space before the first line of the current paragraph, `after` specifies the space after the last line of the current paragraph, and `line` specifies the space between lines within the current paragraph. This option may be specified multiple times in a single command to accommodate different spacing settings.

`bgcolor(`*color*`)` sets the background color for the paragraph.

Specifying `bgcolor()` with `putpdf paragraph` overrides background color specifications from `putpdf begin`.

Options for putpdf text

`nformat(%`*fmt*`)` specifies the numeric format of the text when the content of the new text appended to the paragraph is a numeric value. This setting has no effect when the content is a string.

`font(`*fontname* [`,` *size* [`,` *color*]]`)` sets the font, font size, and font color for the new text within the active paragraph. Note that the font size and font color may be specified individually without specifying *fontname*. Use `font("",` *size*`)` to specify font size only. Use `font("", "",` *color*`)` to specify font color only. For both cases, the default font will be used.

Specifying `font()` with `putpdf text` overrides all other font settings, including those specified with `putpdf begin` and `putpdf paragraph`.

`bold` specifies that the new text in the active paragraph be formatted as bold.

`italic` specifies that the new text in the active paragraph be formatted as italic.

`script(sub|super)` changes the script style of the new text. `script(sub)` makes the text a subscript. `script(super)` makes the text a superscript.

`strikeout` specifies that the new text in the active paragraph have a strikeout mark.

`underline` specifies that the new text in the active paragraph be underlined.

`bgcolor(`*color*`)` sets the background color for the active paragraph.

Specifying `bgcolor()` with `putpdf text` overrides background color specifications from `putpdf begin` and `putpdf paragraph`.

`linebreak[(#)]` specifies that one or # line breaks be added after the new text.

`allcaps` specifies that all letters of the new text in the active paragraph be capitalized.

Options for putpdf image

`width(#[`*unit*`])` sets the width of the image. If the width is larger than the body width of the document, then the body width is used. If `width()` is not specified, then the default size is used; the default is determined by the image information and the body width of the document.

`height(#[`*unit*`])` sets the height of the image. If `height()` is not specified, then the height of the image is determined by the width and the aspect ratio of the image.

`linebreak[(#)]` specifies that one or # line breaks be added after the new image.

Options for putpdf table

table_options

`memtable` specifies that the table be created and held in memory instead of being added to the active document. By default, the table is added to the document immediately after it is created. This option is useful if the table is intended to be added to a cell of another table or to be used multiple times later.

`width(#[`*unit*`|%])` and `width(`*matname*`)` set the table width. Any two of the types of width specifications can be combined.

`width(#[`*unit*`|%])` sets the width based on a specified value. # may be an absolute width or a percent of the default table width, which is determined by the page width of the document. For example, `width(50%)` sets the table width to 50% of the default table width. The default is `width(100%)`.

`width(`*matname*`)` sets the table width based on the dimensions specified in the Stata matrix *matname*, which has contents in the form of $(\#_1, \#_2, \ldots, \#_n)$ to denote the percent of the default table width for each column. n is the number of columns of the table, and the sum of $\#_1$ to $\#_n$ must be equal to 100.

`halign(`*hvalue*`)` sets the horizontal alignment of the table within the page. *hvalue* may be `left`, `right`, or `center`. The default is `halign(left)`.

`indent(#[`*unit*`])` specifies the table indentation from the left margin of the current document.

`spacing(`*position*`, #[`*unit*`])` sets the spacing before or after the table. *position* may be `before` or `after`. `before` specifies the space before the top of the current table, and `after` specifies the space after the bottom of the current table. This option may be specified multiple times in a single command to account for different space settings.

`border(`*bordername* [`,` *bpattern* [`,` *bcolor*]]`)` adds a single border in the location specified by *bordername*, which may be `start`, `end`, `top`, `bottom`, `insideH` (inside horizontal borders), `insideV` (inside vertical borders), or `all`. Optionally, you may change the pattern and color for the border by specifying *bpattern* and *bcolor*.

This option may be specified multiple times in a single command to accommodate different border settings. If multiple `border()` options are specified, they are applied in the order specified from left to right.

`varnames` specifies that the variable names be included as the first row in the table when the table is created using the dataset in memory. By default, only the data values are added to the table.

`obsno` specifies that the observation numbers be included as the first column in the table when the table is created using the dataset in memory. By default, only the data values are added to the table.

`nformat(%`*fmt*`)` specifies the numeric format to be applied to the source values when creating the table from a Stata or Mata matrix. The default is `nformat(%12.0g)`.

`rownames` specifies that the row names of the Stata matrix be included as the first column in the table. By default, only the matrix values are added to the table.

`colnames` specifies that the column names of the Stata matrix be included as the first row in the table. By default, only the matrix values are added to the table.

`title(`*string*`)` inserts a row without borders above the current table. The added row spans all the columns of the table and contains *string* as text. The added row shifts all other table contents down by one row. You should account for this when referencing table cells in subsequent commands.

`note(`*string*`)` inserts a row without borders to the bottom of the table. The added row spans all the columns of the table. This option may be specified multiple times in a single command to add notes on new lines within the same cell. Note text is inserted in the order it was specified from left to right.

cell_options

`append` specifies that the new content for the cell be appended to the current content of the cell. If `append` is not specified, then the current content of the cell is replaced by the new content. Unlike with the `putdocx` command, this option with `putpdf` is used only for appending a new string to the cell when the original cell content is also a string.

`rowspan(#)` sets the specified cell to span vertically # cells downward. If the span exceeds the total number of rows in the table, the span stops at the last row.

`colspan(#)` sets the specified cell to span horizontally # cells to the right. If the span exceeds the total number of columns in the table, the span stops at the last column.

`span(`$\#_1$`,` $\#_2$`)` sets the specified cell to span $\#_1$ cells downward and span $\#_2$ cells to the right.

`linebreak[(#)]` specifies that one or # line breaks be added after the text within the cell.

row_col_options

`nosplit` specifies that row i not split across pages. When a table row is displayed, a page break may fall within the contents of a cell on the row, causing the contents of that cell to be displayed across two pages. `nosplit` prevents this behavior. If the entire row cannot fit on the current page, the row will be moved to the start of the next page.

`addrows(#[, before|after])` adds # rows to the current table before or after row i. If `before` is specified, the rows are added before the specified row. By default, rows are added after the specified row.

`addcols(#[, before|after])` adds # columns to the current table to the right or the left of column j. If `before` is specified, the columns are added to the left of the specified column. By default, the columns are added after, or to the right of, the specified column.

`drop` deletes row i or column j from the table.

cell_fmt_options

`margin(`*type*`, #[`*unit*`])` sets the margins inside the specified cell or of all cells in the specified row, column, or range. *type* may be `top`, `left`, `bottom`, or `right`, which identify the top margin, left margin, bottom margin, or right margin of the cell, respectively. This option may be specified multiple times in a single command to account for different margin settings.

`halign(`*hvalue*`)` sets the horizontal alignment of the specified cell or of all cells in the specified row, column, or range. *hvalue* may be `left`, `right`, or `center`. The default is `halign(left)`.

`valign(`*vvalue*`)` sets the vertical alignment of the specified cell or of all cells in the specified row, column, or range. *vvalue* may be `top`, `bottom`, or `center`. The default is `valign(top)`.

`border(`*bordername* `[,` *bpattern* `[,` *bcolor*`]])` adds a single border to the specified cell or to all cells in the specified row, column, or range in the given location. *bordername* may be `start`, `end`, `top`, `bottom`, or `all`. Optionally, you may change the pattern and color for the border by specifying *bpattern* and *bcolor*.

This option may be specified multiple times in a single command to accommodate different border settings. If multiple `border()` options are specified, they are applied in the order specified from left to right.

`bgcolor(`*color*`)` sets the background color for the specified cell or for all cells in the specified row, column, or range.

`nformat(`*%fmt*`)` applies the Stata numeric format *%fmt* to the text within the specified cell or within all cells in the specified row, column, or range. This setting only applies when the content of the cell is a numeric value.

`font(`*fontname* [`,` *size* [`,` *color*]]`)` sets the font, font size, and font color for the text within the specified cell or within all cells in the specified row, column, or range. Note that the font size and font color may be specified individually without specifying *fontname*. Use `font("",` *size*`)` to specify font size only. Use `font("", "",` *color*`)` to specify font color only. For both cases, the default font will be used.

`bold` applies bold formatting to the text within the specified cell or within all cells in the specified row, column, or range.

`italic` applies italic formatting to the text within the specified cell or within all cells in the specified row, column, or range.

`script(sub | super)` changes the script style of the text. `script(sub)` makes the text a subscript. `script(super)` makes the text a superscript. `script()` may only be specified when formatting a single cell.

`strikeout` adds a strikeout mark to the current text within the specified cell or within all cells in the specified row, column, or range.

`underline` adds an underline to the current text within the specified cell or within all cells in the specified row, column, or range.

`allcaps` uses capital letters for all letters of the current text within the specified cell or within all cells in the specified row, column, or range.

Options for putpdf sectionbreak

`pagesize(`*psize*`)` sets the page size of the section. *psize* may be `letter`, `legal`, `A3`, `A4`, `A5`, `B4`, or `B5`. The default is `pagesize(letter)`.

`landscape` changes the section orientation from portrait to landscape.

`font(`*fontname* [`,` *size* [`,` *color*]]`)` sets the font, font size, and font color for the section. Note that the font size and font color may be specified individually without specifying *fontname*. Use `font("",` *size*`)` to specify font size only. Use `font("", "",` *color*`)` to specify font color only. For both cases, the default font will be used.

`halign(`*hvalue*`)` sets the horizontal alignment of the paragraphs, images, and tables within the section. *hvalue* may be `left`, `right`, or `center`. The default is `halign(left)`.

`margin(`*type*`, #`[*unit*]`)` sets the page margins of the section. *type* may be `top`, `left`, `bottom`, or `right`, which identify the location of the margin inside the section. The margin value # is measured in inches unless another *unit* is specified. This option may be specified multiple times in a single command to account for different margin settings.

`bgcolor(`*color*`)` sets the background color for the section.

Option for putpdf save

`replace` specifies to overwrite *filename*, if it exists, by the contents of the document in memory.

Remarks and examples

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`putpdf` is a suite of commands used to write paragraphs, images, and tables to a PDF file. This allows you to generate various reports and write papers based on those elements.

Before we can write to a `.pdf` file using `putpdf`, we need to create a `.pdf` document in memory. We do this using the `putpdf begin` command.

```
. putpdf begin
```

By default, the document created uses the `letter` pagesize, and its layout is set to `portrait`. Those properties may be overwritten by specifying corresponding document options. Some other properties may also be customized; see *Options for putpdf begin*.

Once the document is created, other objects such as paragraphs and tables may be added to it. After we are done editing the document, we can save it to disk.

```
. putpdf save example.pdf
```

Note that the `replace` option is required if `example.pdf` already exists in the saving directory. If `replace` is specified, then all the contents in `example.pdf` will be overwritten. To close the document in memory and erase all elements in it without saving your work, use `putpdf clear`. `putpdf save` automatically clears the working copy of the document from memory.

Remaining remarks are presented under the following headings:

Add a paragraph

Before you can add text or an image to the paragraph, you must first begin a new paragraph by using `putpdf paragraph`. You can control the formatting for the whole paragraph, such as font properties and alignment, with options for `putpdf paragraph`. See *Options for putpdf paragraph* for paragraph formatting options. The current paragraph remains active until you add a new paragraph, a table, a section break, or a page break.

Add text to paragraph

Once the new paragraph is created, you add text to it by using `putpdf text`. The new text is appended to any text or image that has already been added to the paragraph. This text can also be formatted individually. See *Options for putpdf text* for text formatting options.

Example 1: Add a paragraph and format the text

Suppose we want to write a description of `auto.dta` to `example.pdf`. Our description includes the number of automobiles and the maximum miles per gallon (MPG) among all the automobiles. We can create a paragraph containing that information by using `putpdf paragraph`.

To start, we use the `summarize` command to get descriptive statistics for the `mpg` variable. After that, we can use the returned results from `summarize` in the text that we write.

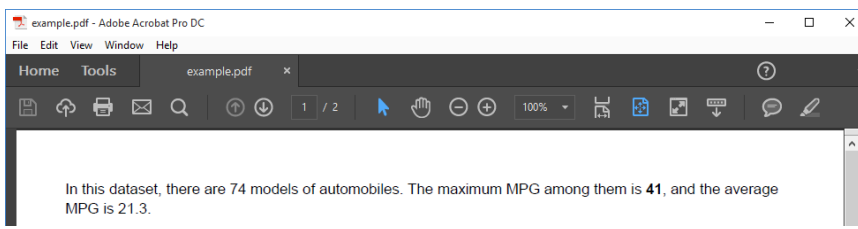
```
. use http://www.stata-press.com/data/r15/auto
(1978 Automobile Data)
. summarize mpg
    Variable |        Obs        Mean    Std. Dev.       Min        Max
-------------+---------------------------------------------------------
         mpg |         74     21.2973    5.785503         12         41
. return list
scalars:
                  r(N) =  74
              r(sum_w) =  74
               r(mean) =  21.2972972972973
                r(Var) =  33.47204738985561
                 r(sd) =  5.785503209735141
               r(min) =  12
               r(max) =  41
               r(sum) =  1576
```

The returned results `r(N)`, `r(mean)`, and `r(max)` store the number of automobiles, the average MPG, and the maximum MPG among those automobiles.

Now, we specify the command to create our document. We then add a new paragraph to the active document and append text to it. The content of each `putpdf text` command may be a valid Stata expression (see [U] **13 Functions and expressions**) or a normal string. `putpdf text` can be used to break long sentences into pieces, and each piece in the paragraph can be customized to have a different style. Here, `r(max)` is formatted as bold, and `r(mean)` is formatted to have one decimal place.

```
. putpdf begin
. putpdf paragraph
. putpdf text ("In this dataset, there are `r(N)'")
. putpdf text (" models of automobiles. The maximum MPG among them is ")
. putpdf text (r(max)), bold
. putpdf text (", and the average MPG is ")
. putpdf text (r(mean)), nformat("%4.1f")
. putpdf text (".")
```

This adds text to the document that looks like this:



Add an image to paragraph

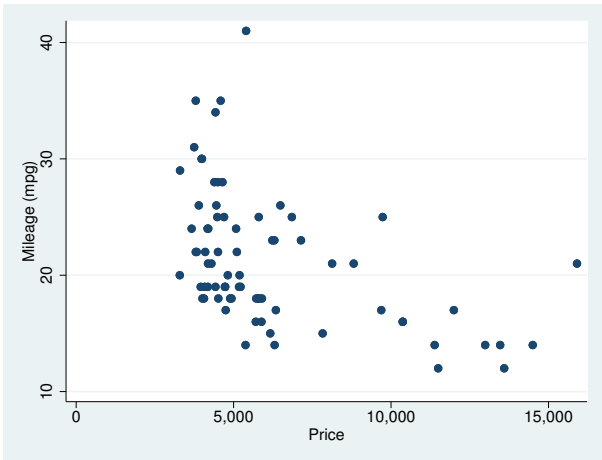
You can add any existing `.png` and `.jpg` image files to a `.pdf` file with `putpdf image`. For example, you could include a company logo. You can also add graphs from Stata output. Because Stata graphs use the `.gph` extension, you must use `graph export` to convert the Stata graph to one of the supported image formats; see [G-2] **graph export**.

If you are adding the image after text and you want the paragraph that contains the image to have the same format as the active paragraph, you can insert the image with no additional step. However, if you want to change the formatting or if there is no active paragraph, you must create one using `putpdf paragraph`. Note that you do not need to declare a new paragraph to insert an image into the cell of a table.

▷ Example 2: Export a Stata graph

We may want to add a scatterplot showing how mileage (`mpg`) correlates with price (`price`) of cars. We can use the `scatter` command and then `graph export` to create a `.png` file.

```
. scatter mpg price
```




```
. graph export auto.png
(file auto.png written in PNG format)
```

Next, we use `putpdf image` to add the `.png` file to the document. Because our active paragraph is left-aligned and we want our image to be centered, we declare a new paragraph.

```
. putpdf paragraph, halign(center)
. putpdf image auto.png, width(4)
```

Here, the image is put in the center of the document and is set to have a width of 4 inches. Note that the `halign()` option had to be specified with `putpdf paragraph` because alignment is controlled by paragraph settings.

◁

Add a table

`putpdf table` is used to add a table to the document. A valid table name is required to declare a table. The table name is used later as a reference to customize the table and the cells. We can edit the created table until another object such as a paragraph, another table, or a page break is added to the document.

Export data

Exporting the data in memory is useful when you want to make a table in the `.pdf` file using content from your dataset. The `if` or `in` qualifier may be applied to export only those observations that meet the specified condition or are in the specified range (or both, if both `if` and `in` are specified).

▷ Example 3: Export table of summary statistics

Suppose we want to export summary statistics, such as the number of automobiles, the maximum and minimum MPG, and the average MPG, that have been calculated separately for foreign and domestic automobiles. To start, we use the `statsby` command to collect the above statistics for each group. Because `statsby` creates a new dataset that overwrites the dataset in memory, we need to preserve the dataset and then restore it after we have finished exporting the data.

```
. preserve
. statsby Total=r(N) Average=r(mean) Max=r(max) Min=r(min), by(foreign):
> summarize mpg
(running summarize on estimation sample)
      command:  summarize mpg
        Total:  r(N)
      Average:  r(mean)
          Max:  r(max)
          Min:  r(min)
           by:  foreign
Statsby groups
─────┼─── 1 ───┼─── 2 ───┼─── 3 ───┼─── 4 ───┼─── 5
..
```

Because we want the variable names to serve as column titles, we rename `foreign` to `Origin`. Then, we export the data in memory as a table by specifying in `data()` the variable names `Origin`, `Total`, `Average`, `Max`, and `Min`. In this case, we use the table name `tbl1`. The order of the variable names in the list determines the column order in the table.

```
. rename foreign Origin
. putpdf table tbl1 = data("Origin Total Average Max Min"), varnames
> border(start, nil) border(end, nil) border(insideV, nil)
```

By default, the exported table includes single borders around all cells. We use the `border()` option to remove all vertical borders from the table. We can apply additional formatting to individual cells or ranges of cells; see example 4.

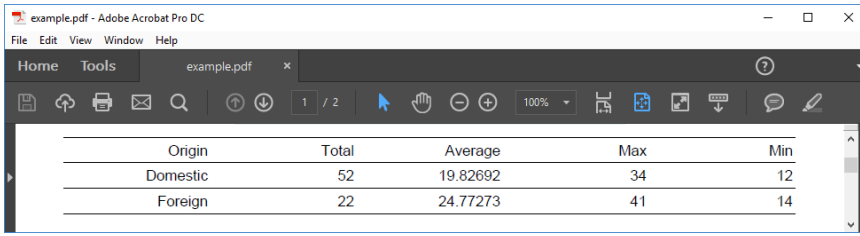
◁

▷ Example 4: Format a table

The cells in the table that we created in example 3 can be further customized. For example, we can reset the contents, set the text alignment, modify the borders, and so forth. Here, we set the text for all cells of the table to be right-aligned instead of the default left alignment. Because we would like all cells in the table to be right-aligned, we specify "`.`" for both the row and column specification.

```
. putpdf table tbl1(.,.), halign(right)
```

Our formatted `tbl1` looks like this:



Afterward, we restore the dataset.

```
. restore
```

Export estimation results

One of the primary uses of `putpdf table` is to export estimation results. Suppose we fit a linear regression model of `mpg` as a function of the car's gear ratio (`gear_ratio`), turning radius (`turn`), and whether the car is of foreign origin (`foreign`) using `regress`.

```
. regress mpg gear_ratio turn foreign, noheader
```

mpg	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
gear_ratio	4.855506	1.522481	3.19	0.002	1.819013	7.891999
turn	-.8364698	.1440204	-5.81	0.000	-1.123709	-.5492302
foreign	-3.503218	1.433526	-2.44	0.017	-6.362296	-.6441404
_cons	40.865	8.692731	4.70	0.000	23.52789	58.2021

We want to add these regression results to the document. For most estimation commands, we can use the `etable` output type to add the elements of the displayed coefficient table. To export all columns of the default `regress` output, we need type only

```
. putpdf table reg = etable
```

But we need not stop there. In example 5, we select a subset of the results and format them.

Example 5: Export selected estimation results

Suppose we want to export only the point estimates and confidence intervals from the table above; we can also use `putpdf table` to remove the components that we do not want.

First, we create a new table, `tbl2`, that contains the estimation results from `regress`. We specify the `width` option to ensure that the table occupies the full page width of the document. Next, we want to remove the third through the fifth columns. To drop the fifth column, we specify `tbl2(.,5)` followed by the `drop` option. We work from right to left, dropping column five before four, because in this manner, the column numbers to the left of the newly dropped column do not change.

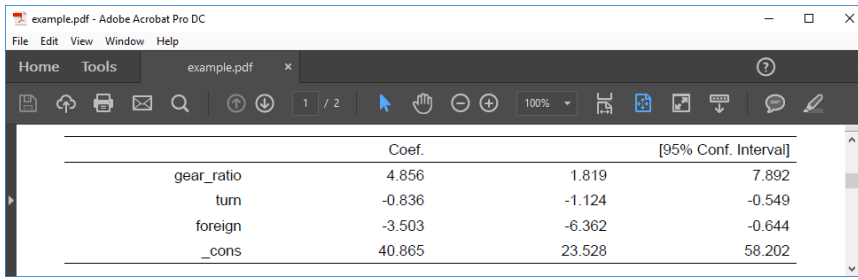
```
. putpdf table tbl2 = etable, width(100%)
. putpdf table tbl2(.,5), drop //drop p-value column
. putpdf table tbl2(.,4), drop //drop t column
. putpdf table tbl2(.,3), drop //drop SE column
```

Equivalently, we could have dropped the third column three times, because each time we drop it, the previous fourth column becomes the third.

Now that we have only the statistics we want, we can format our table by removing the border on the right side of the first column. To do this, we specify `nil` as the border pattern for the right border. We also format all estimates, in what will now be columns two through four, to have three decimal places by specifying the column indexes as a range. Finally, we erase the text "mpg" from the header for the first column.

```
. putpdf table tbl2(.,1), border(right, nil)
. putpdf table tbl2(.,2/4), nformat(%9.3f)
. putpdf table tbl2(1,1) = ("") // erase the content of first cell "mpg"
```

Our final table appears in the document as follows:



In this example, because we wanted to use the same number of decimals for all estimates in our table and because we are using the `etable` output type, we could have preemptively set the format with our `regress` command. The modified version of the command is

```
. regress mpg gear_ratio turn foreign, noheader cformat(%9.3f)
```

This avoids the need to issue a separate formatting command.

◁

The `etable` output type also works after `estimates table`, and you may find it easier to build a table of selected estimates prospectively. See example 3 in [R] **estimates table** for an illustration.

Advanced uses

The previous example demonstrated the use of the `etable` output type for exporting an estimation table to a `.pdf` file. While this method is efficient for extracting large portions of the estimation results, exporting results to highly customized tables with complicated layouts can at times be done more easily from a matrix of stored results. See [U] **14 Matrix expressions** for help with matrix notation.

A small set of estimation commands do not support the `etable` output type; however, matrices of stored results can be exported when using these commands. For a list of estimation commands that do not support the `etable` output type, see *Unsupported estimation commands* in [P] **putdocx**.

Finally, the dimension of the table and the content of each cell may not be fixed or may change when commands are executed with different data. In this situation, consider building the table in pieces and combining them.

Example 6: Export selected estimation results from a matrix

To illustrate the basic use of matrix manipulation of stored results to create an estimation table, we re-create the simple estimation table from example 5. The displayed results returned by `regress` are stored in the matrix `r(table)`, which can be viewed by typing `matrix list`.

```
. matrix list r(table)
r(table)[9,4]
        gear_ratio        turn     foreign       _cons
     b   4.8555057  -.83646975  -3.5032183   40.864996
    se   1.5224812   .14402036   1.4335262   8.6927313
     t   3.1892057  -5.8079965  -2.4437769   4.7010537
pvalue    .0021348   1.704e-07   .01705791   .00001258
    ll   1.8190127  -1.1237093  -6.3622962   23.527891
    ul   7.8919987   -.5492302  -.64414044   58.202102
    df          70          70          70          70
  crit   1.9944371   1.9944371   1.9944371   1.9944371
 eform           0           0           0           0
```

First, we create the matrix `rtable` as the transpose of `r(table)` because we want to see the variable names in rows. The point estimates and confidence intervals in the regression table can be extracted from the matrix `rtable`. We can extract columns 1, 5, and 6 from `rtable`, combine them, and assign them to another new matrix, `r_table`.

```
. matrix rtable = r(table)'
. matrix r_table = rtable[1...,1], rtable[1...,5..6]
```

Then, we export `r_table` to the document as a table with the name `tbl3`.

```
. putpdf table tbl3 = matrix(r_table), nformat(%9.3f) rownames colnames
> border(start, nil) border(end, nil) border(insideH, nil) border(insideV, nil)
```

In this table, all values imported from the matrix have been formatted as `%9.3f`. In addition, the row and column names of the matrix `r_table` are included as the first column and first row of the table. We keep only the top and bottom borders of the table by specifying `nil` for the leading edge border (`start`), trailing edge border (`end`), inside horizontal edges border (`insideH`), and inside vertical edges border (`insideV`).

The column names (`b`, `ll`, and `ul`) from the matrix may not be exactly what we want; we can modify them by customizing the corresponding cells. We can reset the contents and the horizontal alignment of the cells on the first row to give the columns new titles.

```
. putpdf table tbl3(1,2) = ("Coef."), halign(right)
. putpdf table tbl3(1,3) = ("[95% Conf. Interval]"), halign(right) colspan(2)
```

Afterward, we add back the bottom border of the first row and right-align the cells on the rest of the rows by specifying the row range as two through five.

```
. putpdf table tbl3(1,.), border(bottom)
. putpdf table tbl3(2/5,.), halign(right)
```

Our final table will be identical to that shown in example 5.

◁

▷ Example 7: Create a table from components

We can also build tables in pieces and then combine them. For illustrative purposes, we again use the table created in example 5 and example 6. The table can be considered to comprise two parts, the header and the body. We first create a table for each part. Notice that both tables will be created with the `memtable` option, which declares that they be created in memory rather than added to the document. This is required so we can add the tables as components to the final table.

The header part contains the column titles and is specified as a 1×2 table with borders removed and contents aligned to the right.

```
. putpdf table tbl41 = (1,2), memtable border(all, nil)
. putpdf table tbl41(1,1) = ("Coef."), halign(right)
. putpdf table tbl41(1,2) = ("[95% Conf. Interval]"), halign(right)
```

The body part contains the content that we want displayed. It is created as another table by using the same Stata matrix from example 6, `r_table`. Again, we remove all borders when we create the table. To align all contents to the right in a single command, we specify "`.`" as the row and column indexes when we edit the table formatting.

```
. putpdf table tbl42 = matrix(r_table), memtable border(all, nil)
> nformat(%9.3f) rownames
. putpdf table tbl42(.,.), halign(right)
```

Finally, we create a 2×1 table named `tbl4`, in which the first cell contains `tbl41` and the second cell contains `tbl42`. In addition, we remove its leading edge border and trailing edge border.

```
. putpdf table tbl4 = (2,1), border(start, nil) border(end, nil)
. putpdf table tbl4(1,1) = table(tbl41)
. putpdf table tbl4(2,1) = table(tbl42)
```

This is an example of what is called a nested table.

◁

When we create a table from components, the dimensions are often predetermined. Another way to add a table is to create it dynamically: start with a simple table, and then add rows or columns to it gradually.

In example 7, we created a table as two parts. The first part was the header and the second was the body that contained the estimation results. Each of the parts was a table created in two steps. The first step created the table, and the second added the content to it. In our third step, we added our two-component tables to a third table, itself first created and formatted before adding the contents.

To create a table dynamically, we again start by creating a table with only basic formatting. But rather than adding content all at once, we add content cell by cell and variable by variable. As we add the content, we apply any specialized formatting for the cells, rows, or columns.

▷ Example 8: Create a table dynamically

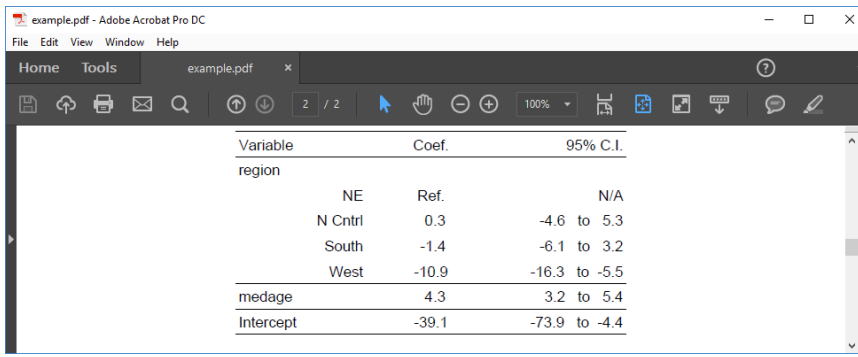
Below we `use` Census data recording the death rate (`drate`) and median age (`medage`) for each state. The data also record four regions of the country in which each state is located, `NE`, `N Cntrl`, `South`, and `West`. We fit a linear regression model and store the transpose of rows 1, 5, and 6 in column matrices named `b`, `ll`, and `ul`.

```
. use http://www.stata-press.com/data/r15/census9
(1980 Census data by state)
. regress drate i.region medage [aw=pop], noheader
(sum of wgt is 225907472)
```

drate	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
region						
N Cntrl	.3138738	2.456431	0.13	0.899	-4.633632	5.26138
South	-1.438452	2.320244	-0.62	0.538	-6.111663	3.234758
West	-10.90629	2.681349	-4.07	0.000	-16.30681	-5.505777
medage	4.283183	.5393329	7.94	0.000	3.196911	5.369455
_cons	-39.14727	17.23613	-2.27	0.028	-73.86262	-4.431915

```
. matrix rtable = r(table)
. matrix b = rtable[1,1...]'
. matrix ll = rtable[5,1...]'
. matrix ul = rtable[6,1...]'
```

Our goal is to collect the point estimates and confidence intervals and output a table that looks like the following:



We want to start our new table on its own page, so we insert a page break before adding our table.

```
. putpdf pagebreak
```

To create our table of point estimates and confidence intervals, we first create a 1×3 table with no borders and fill the single row with `Variable`, `Coef.`, and `95% C.I.`. We also set the table width to be 4 inches, put the table in the center of the document, and add back the top and bottom borders.

```
. putpdf table tbl5 = (1,3), border(all,nil) width(4) halign(center)
. putpdf table tbl5(1,1)=("Variable"), border(top) border(bottom)
. putpdf table tbl5(1,2)=("Coef."), halign(center) border(top) border(bottom)
. putpdf table tbl5(1,3)=("95% C.I."), halign(right) border(top) border(bottom)
```

Afterward, we add one row to the end of the table and fill in the content of the first column in this row as `region`.

```
. putpdf table tbl5(1,.), addrows(1)
. putpdf table tbl5(2,1)=("region")
```

In the resulting table, the `region` variable has four levels, and each level takes up one row. The `medage` variable and the constant term take up another two rows. For each row, the first column contains the variable label, the second column contains the point estimate that is stored in the matrix `b`, and the third column contains a formatted string of the lower limit and upper limit of the confidence intervals. Those two levels are stored in matrix `ll` and `ul`, respectively.

Based on the above information, we add those rows one by one at the end of the table and fill in the content and format for each cell in the corresponding row. Notice that `NE` is the base level of `region`; its point estimate and confidence interval are replaced by `Ref.` and `N/A` in the resulting table. In addition, we reset the top and bottom borders for `medage` and `Intercept`.

```
. local row 2
. local i 1
. foreach name in "NE" "N Cntrl" "South" "West" "medage" "Intercept" {
  2.      putpdf table tbl5(‘row’,.), addrows(1)
  3.      local ++row
  4.      if "‘name’"=="NE" {
  5.              local coef "Ref."
  6.              local ci "N/A"
  7.      }
  8.      else {
  9.              local coef : display %5.1f b[‘i’,1]
 10.              local low : display %5.1f ll[‘i’,1]
 11.              local upp : display %5.1f ul[‘i’,1]
 12.              local ci "‘low’   to ‘upp’"
 13.      }
 14.      putpdf table tbl5(‘row’, 1) = ("‘name’"), halign(right)
 15.      putpdf table tbl5(‘row’, 2) = ("‘coef’"), halign(center)
 16.      putpdf table tbl5(‘row’, 3) = ("‘ci’"), halign(right)
 17.      if "‘name’"=="medage" | "‘name’"=="Intercept" {
 18.              putpdf table tbl5(‘row’, 1), halign(left) border(top)
> border(bottom)
 19.              putpdf table tbl5(‘row’, 2), border(top) border(bottom)
 20.              putpdf table tbl5(‘row’, 3), border(top) border(bottom)
 21.      }
 22.        local ++i
 23. }
```

◁

▷ Example 9: Nesting images in a table

We might want to add various images to the document and align them side by side, row by row, or both. To be more clear, we use an example to illustrate this purpose. In this example, we use another dataset—the Second National Health and Nutrition Examination Survey (NHANES II) (McDowell et al. 1981).

First, we fit a three-way full factorial model of systolic blood pressure on age group, sex, and body mass index (BMI). Then, we estimate the predictive margins for each combination of `agegrp` and `sex` at levels of BMI from 10 through 40 at intervals of 10 and graph the results.

```
. use http://www.stata-press.com/data/r15/nhanes2
. regress bpsystol agegrp##sex##c.bmi
  (output omitted)
. forvalues v=10(10)40 {
  2.          margins agegrp, over(sex) at(bmi=`v')
  3.          marginsplot
  4.          graph export bmi`v'.png
  5. }
  (output omitted)
```

Now, we want to add those four plots into the document, requiring that the margins plots for `bmi=10` and `bmi=20` lay side by side on top of the other two side-by-side margins plots for `bmi=30` and `bmi=40`. It is also required that each plot have a subtitle indicating the level of BMI and that the final figure have a title. This complicated layout can be easily accomplished using `putpdf table`.

We start with a 4×2 table and remove all of its borders. We caption our table by using the `note()` option. In each cell on the odd rows, we add a plot, and we fill each cell on the even rows with the title corresponding to the plot above it and center-align the text in the cell.

```
. putpdf table tbl6 = (4,2), border(all,nil)
> note(Figure 1: Predictive margins of agegrp)
. putpdf table tbl6(1,1)=image(bmi10.png)
. putpdf table tbl6(2,1)=("(a) bmi=10"), halign(center)
. putpdf table tbl6(1,2)=image(bmi20.png)
. putpdf table tbl6(2,2)=("(b) bmi=20"), halign(center)
. putpdf table tbl6(3,1)=image(bmi30.png)
. putpdf table tbl6(4,1)=("(c) bmi=30"), halign(center)
. putpdf table tbl6(3,2)=image(bmi40.png)
. putpdf table tbl6(4,2)=("(d) bmi=40"), halign(center)
```

We formatted our table and the cell contents as we added content to the document. However, we would also like to format the caption. The `note()` option adds an additional row at the end of the table that spans all the columns of the table. We can format the text of the note by specifying the last row (in this case 5) and either `.` or `1` as the column index. Here, we center-align and bold the text of the caption. Because note text is always placed within a single merged cell, it does not matter how short or long the text is when you identify the cell location.

```
. putpdf table tbl6(5,.), halign(center) bold
```

This creates a table that looks like the following:

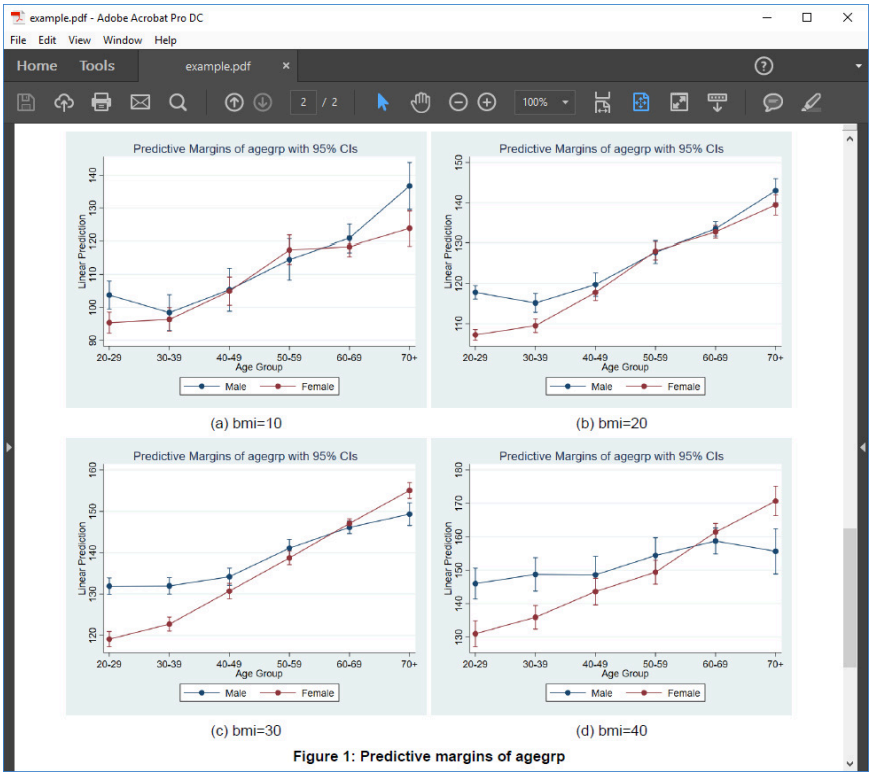


Figure 1: Predictive margins of agegrp

We can now type

```
. putpdf save example.pdf
```

to save the document we that created as `example.pdf`

Stored results

`putpdf describe` *tablename* stores the following in `r()`:

Scalars

`r(nrows)`	number of rows in the table
`r(ncols)`	number of columns in the table

Appendix

Colors

color	
aliceblue	deeppink
antiquewhite	deepskyblue
aqua	dimgray
aquamarine	dodgerblue
azure	firebrick
beige	floralwhite
bisque	forestgreen
black	fuchsia
blanchedalmond	gainsboro
blue	ghostwhite
blueviolet	gold
brown	goldenrod
burlywood	gray
cadetblue	green
chartreuse	greenyellow
chocolate	honeydew
coral	hotpink
cornflowerblue	indianred
cornsilk	indigo
crimson	ivory
cyan	khaki
darkblue	lavender
darkcyan	lavenderblush
darkgoldenrod	lawngreen
darkgray	lemonchiffon
darkgreen	lightblue
darkkhaki	lightcoral
darkmagenta	lightcyan
darkolivegreen	lightgoldenrodyellow
darkorange	lightgray
darkorchid	lightgreen
darkred	lightpink
darksalmon	lightsalmon
darkseagreen	lightseagreen
darkslateblue	lightskyblue
darkslategray	lightslategray
darkturquoise	lightsteelblue
darkviolet	lightyellow

color, continued

lime	peru
limegreen	pink
linen	plum
magenta	powerblue
maroon	purple
mediumaquamarine	red
mediumblue	rosybrown
mediumorchid	royalblue
mediumpurple	saddlebrown
mediumseagreen	salmon
mediumslateblue	sandybrown
mediumspringgreen	seagreen
mediumturquoise	seashell
mediumvioletred	sienna
midnightblue	silver
mintcream	skyblue
mistyrose	slateblue
moccasin	snow
navajowhite	springgreen
navy	steelblue
oldlace	tan
olive	teal
olivedrab	thistle
orange	tomato
orangered	turquoise
orchid	violet
palegoldenrod	wheat
palegreen	white
paleturquoise	whitesmoke
palevioletred	yellow
papayawhip	yellowgreen
peachpuff	

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Also see

[P] **putexcel** — Export results to an Excel file

[P] **putdocx** — Generate Office Open XML (.docx) file

[M-5] **_docx*()** — Generate Office Open XML (.docx) file

[M-5] **Pdf*()** — Create a PDF file

[M-5] **xl()** — Excel file I/O class