

**fvset** — Declare factor-variable settings

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## Syntax

Declare base settings

```
fvset base base_spec varlist
```

Declare design settings

```
fvset design design_spec varlist
```

Clear the current settings

```
fvset clear varlist
```

Report the current settings

```
fvset report [varlist] [, base(base_spec) design(design_spec) ]
```

<i>base_spec</i>	Description
<b>default</b>	default base
<b><u>first</u></b>	lowest level value; the default
<b><u>last</u></b>	highest level value
<b><u>frequent</u></b>	most frequent level value
<b><u>none</u></b>	no base
<b>#</b>	nonnegative integer value

<i>design_spec</i>	Description
<b>default</b>	default base
<b><u>asbalanced</u></b>	accumulate using $1/k$ , $k$ = number of levels
<b><u>asobserved</u></b>	accumulate using observed relative frequencies; the default

## Description

`fvset` declares factor-variable settings. Factor-variable settings identify the base level and how to accumulate statistics over levels.

`fvset base` specifies the base level for each variable in *varlist*. The default for factor variables without a declared base level is `first`.

`fvset design` specifies how to accumulate over the levels of a factor variable. The `margins` command is the only command aware of this setting; see [R] [margins](#). By default, `margins` assumes that factor variables are `asobserved`, meaning that they are accumulated by weighting by the number of observations or the sum of the weights if weights have been specified.

`fvset clear` removes factor-variable settings for each variable in *varlist*. `fvset clear _all` removes all factor-variable settings from all variables.

`fvset report` reports the current factor-variable settings for each variable in *varlist*. `fvset` without arguments is a synonym for `fvset report`.

## Options

`base(base_spec)` restricts `fvset report` to report only the factor-variable settings for variables with the specified *base\_spec*.

`design(design_spec)` restricts `fvset report` to report only the factor-variable settings for variables with the specified *design\_spec*.

## Remarks and examples

[stata.com](http://www.stata.com)

### ► Example 1

Using `auto2.dta`, we include factor variable `i.rep78` in a regression:

```
. use http://www.stata-press.com/data/r13/auto2
(1978 Automobile Data)
. regress mpg i.rep78, baselevels
```

Source	SS	df	MS	Number of obs = 69		
Model	549.415777	4	137.353944	F( 4, 64) =	4.91	
Residual	1790.78712	64	27.9810488	Prob > F =	0.0016	
Total	2340.2029	68	34.4147485	R-squared =	0.2348	
				Adj R-squared =	0.1869	
				Root MSE =	5.2897	

  

mpg	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
rep78						
Poor	0	(base)				
Fair	-1.875	4.181884	-0.45	0.655	-10.22927	6.479274
Average	-1.566667	3.863059	-0.41	0.686	-9.284014	6.150681
Good	.6666667	3.942718	0.17	0.866	-7.209818	8.543152
Excellent	6.363636	4.066234	1.56	0.123	-1.759599	14.48687
_cons	21	3.740391	5.61	0.000	13.52771	28.47229

We specified the `baselevels` option so that the base level would be included in the output. By default, the first level is the base level. We can change the base level to 2:

```
. fvset base 2 rep78
```

```
. regress mpg i.rep78, baselevels
```

Source	SS	df	MS			
Model	549.415777	4	137.353944	Number of obs = 69		
Residual	1790.78712	64	27.9810488	F( 4, 64) = 4.91		
				Prob > F = 0.0016		
				R-squared = 0.2348		
				Adj R-squared = 0.1869		
				Root MSE = 5.2897		
Total	2340.2029	68	34.4147485			

  

mpg	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
rep78						
Poor	1.875	4.181884	0.45	0.655	-6.479274	10.22927
Fair	0	(base)				
Average	.3083333	2.104836	0.15	0.884	-3.896559	4.513226
Good	2.541667	2.247695	1.13	0.262	-1.948621	7.031954
Excellent	8.238636	2.457918	3.35	0.001	3.32838	13.14889
_cons	19.125	1.870195	10.23	0.000	15.38886	22.86114

Let's set rep78 to have no base level and fit a cell-means regression:

```
. fvset base none rep78
```

```
. regress mpg i.rep78, noconstant
```

Source	SS	df	MS			
Model	31824.2129	5	6364.84258	Number of obs = 69		
Residual	1790.78712	64	27.9810488	F( 5, 64) = 227.47		
				Prob > F = 0.0000		
				R-squared = 0.9467		
				Adj R-squared = 0.9426		
				Root MSE = 5.2897		
Total	33615	69	487.173913			

  

mpg	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
rep78						
Poor	21	3.740391	5.61	0.000	13.52771	28.47229
Fair	19.125	1.870195	10.23	0.000	15.38886	22.86114
Average	19.43333	.9657648	20.12	0.000	17.504	21.36267
Good	21.66667	1.246797	17.38	0.000	19.1759	24.15743
Excellent	27.36364	1.594908	17.16	0.000	24.17744	30.54983

◀

## ▶ Example 2

By default, margins accumulates a margin by using the observed relative frequencies of the factor levels.

```
. regress mpg i.foreign
```

Source	SS	df	MS			
Model	378.153515	1	378.153515	Number of obs = 74		
Residual	2065.30594	72	28.6848048	F( 1, 72) = 13.18		
				Prob > F = 0.0005		
				R-squared = 0.1548		
				Adj R-squared = 0.1430		
				Root MSE = 5.3558		
Total	2443.45946	73	33.4720474			

  

mpg	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
foreign						
Foreign	4.945804	1.362162	3.63	0.001	2.230384	7.661225
_cons	19.82692	.7427186	26.70	0.000	18.34634	21.30751

```
. margins
Predictive margins                                Number of obs =      74
Model VCE    : OLS
Expression   : Linear prediction, predict()
```

	Delta-method		t	P> t	[95% Conf. Interval]	
	Margin	Std. Err.				
_cons	21.2973	.6226014	34.21	0.000	20.05616	22.53843

Let's set `foreign` to always accumulate using equal relative frequencies:

```
. fvset design asbalanced foreign
. regress mpg i.foreign
```

Source	SS	df	MS	Number of obs =	74
Model	378.153515	1	378.153515	F( 1, 72) =	13.18
Residual	2065.30594	72	28.6848048	Prob > F =	0.0005
				R-squared =	0.1548
				Adj R-squared =	0.1430
Total	2443.45946	73	33.4720474	Root MSE =	5.3558

mpg	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
foreign	4.945804	1.362162	3.63	0.001	2.230384	7.661225
_cons	19.82692	.7427186	26.70	0.000	18.34634	21.30751

```
. margins
Adjusted predictions                                Number of obs =      74
Model VCE    : OLS
Expression   : Linear prediction, predict()
at          : foreign (asbalanced)
```

	Delta-method		t	P> t	[95% Conf. Interval]	
	Margin	Std. Err.				
_cons	22.29983	.6810811	32.74	0.000	20.94211	23.65754

Suppose that we issued the `fvset design` command earlier in our session and that we cannot remember which variables we set as `asbalanced`. We can retrieve this information by using the `fvset report` command:

```
. fvset report, design(asbalanced)
```

Variable	Base	Design
foreign		asbalanced



### □ Technical note

`margins` is aware of a factor variable's design setting only through the estimation results it is working with. The design setting is stored by the estimation command; thus changing the design setting between the estimation command and `margins` will have no effect. For example, the output from the following two calls to `margins` yields the same results:

```
. fvset clear foreign
. regress mpg i.foreign
```

Source	SS	df	MS			
Model	378.153515	1	378.153515	Number of obs =	74	
Residual	2065.30594	72	28.6848048	F( 1, 72) =	13.18	
				Prob > F =	0.0005	
				R-squared =	0.1548	
				Adj R-squared =	0.1430	
Total	2443.45946	73	33.4720474	Root MSE =	5.3558	

  

mpg	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
foreign						
Foreign	4.945804	1.362162	3.63	0.001	2.230384	7.661225
_cons	19.82692	.7427186	26.70	0.000	18.34634	21.30751

```
. margins
```

```
Predictive margins          Number of obs =          74
Model VCE      : OLS
Expression    : Linear prediction, predict()
```

	Delta-method		t	P> t	[95% Conf. Interval]	
	Margin	Std. Err.				
_cons	21.2973	.6226014	34.21	0.000	20.05616	22.53843

```
. fvset design asbalanced foreign
```

```
. margins
```

```
Predictive margins          Number of obs =          74
Model VCE      : OLS
Expression    : Linear prediction, predict()
```

	Delta-method		t	P> t	[95% Conf. Interval]	
	Margin	Std. Err.				
_cons	21.2973	.6226014	34.21	0.000	20.05616	22.53843

□

## Stored results

fvset stores the following in `r()`:

Macros

```
r(varlist)      varlist
r(baselist)    base setting for each variable in varlist
r(designlist)  design setting for each variable in varlist
```