Towards Self-Contained Data Attaching Validation Routines to Variables

Bill Rising

Mathematics Department Bellarmine University

NASUG 2006



Outline

- Goals
 - Goals for Validation
- 2 Methods
 - Exploiting Stata
 - Implementation
- Demo of package
 - Example 1 dataset
- 4 Finshing Up
 - Questions?

- Currently, validation is contained in
 - outside documentation
 - outside programs (do/ado files)
- Can be separated from data too easily

- Currently, validation is contained in
 - outside documentation
 - outside programs (do/ado files)
- Can be separated from data too easily

- Currently, validation is contained in
 - outside documentation
 - outside programs (do/ado files)
- Can be separated from data too easily

- Currently, validation is contained in
 - outside documentation
 - outside programs (do/ado files)
- Can be separated from data too easily

- The validation must follow variables through manipulation
 - Merges
 - Subsetting variables
- Validation rules must be attached to Variables.

- The validation must follow variables through manipulation
 - Merges
 - Subsetting variables
- Validation rules must be attached to Variables.

- The validation must follow variables through manipulation
 - Merges
 - Subsetting variables
- Validation rules must be attached to Variables.

- The validation must follow variables through manipulation
 - Merges
 - Subsetting variables
- Validation rules must be attached to Variables.

Validation Easy

- Can attach validation by knowing some Stata
- Do not need to know a lot of programming tricks
- Not Easy == Not Used

Validation Easy

- Can attach validation by knowing some Stata
- Do not need to know a lot of programming tricks
- Not Easy == Not Used

Validation Easy

- Can attach validation by knowing some Stata
- Do not need to know a lot of programming tricks
- Not Easy == Not Used

Outline

- Goals
 - Goals for Validation
- 2 Methods
 - Exploiting Stata
 - Implementation
- Demo of package
 - Example 1 dataset
- 4 Finshing Up
 - Questions?

- Characteristics allow attaching most any text to variable or the dataset
- Characteristics follow variables through data manipulations
- Use characteristics!
- Brief review of characteristics (demo)

- Characteristics allow attaching most any text to variable or the dataset
- Characteristics follow variables through data manipulations
- Use characteristics!
- Brief review of characteristics (demo)

- Characteristics allow attaching most any text to variable or the dataset
- Characteristics follow variables through data manipulations
- Use characteristics!
- Brief review of characteristics (demo)

- Characteristics allow attaching most any text to variable or the dataset
- Characteristics follow variables through data manipulations
- Use characteristics!
- Brief review of characteristics (demo)

- Store validation code in a characteristic
- Write a program to extract the code and execute it
- Satisfies first and second goals, but not third.

- Store validation code in a characteristic
- Write a program to extract the code and execute it
 - The dochar command will do this
- Satisfies first and second goals, but not third.

- Store validation code in a characteristic
- Write a program to extract the code and execute it
 - The dochar command will do this
- Satisfies first and second goals, but not third.

- Store validation code in a characteristic
- Write a program to extract the code and execute it
 - The dochar command will do this
- Satisfies first and second goals, but not third.

Outline

- Goals
 - Goals for Validation
- 2 Methods
 - Exploiting Stata
 - Implementation
- Demo of package
 - Example 1 dataset
- 4 Finshing Up
 - Questions?

- Need to make stored code flexible
 - Renaming variables should not cause problems
 - Code should be rather indifferent to how its results are used
- Would like to extend to use simple things for lists, like Stata's numlists
- Need something simple for continuous ranges

- Need to make stored code flexible
 - Renaming variables should not cause problems
 - Code should be rather indifferent to how its results are used
- Would like to extend to use simple things for lists, like Stata's numlists
- Need something simple for continuous ranges

- Need to make stored code flexible
 - Renaming variables should not cause problems
 - Code should be rather indifferent to how its results are used
- Would like to extend to use simple things for lists, like Stata's numlists
- Need something simple for continuous ranges

- Need to make stored code flexible
 - Renaming variables should not cause problems
 - Code should be rather indifferent to how its results are used
- Would like to extend to use simple things for lists, like Stata's numlists
- Need something simple for continuous ranges

- Need to make stored code flexible
 - Renaming variables should not cause problems
 - Code should be rather indifferent to how its results are used
- Would like to extend to use simple things for lists, like Stata's numlists
- Need something simple for continuous ranges

- Would like to avoid using commands altogether, when possible
- Would like to avoid user needing to know details about how the validation works
- Perhaps a dialog box as a front end?

- Would like to avoid using commands altogether, when possible
- Would like to avoid user needing to know details about how the validation works
- Perhaps a dialog box as a front end?

- Would like to avoid using commands altogether, when possible
- Would like to avoid user needing to know details about how the validation works
- Perhaps a dialog box as a front end?

Solution

- Dialog box, ckvaredit takes care of attaching the charateristics
- Command ckvar runs through the variables and does the validation

Solution

- Dialog box, ckvaredit takes care of attaching the charateristics
- Command ckvar runs through the variables and does the validation

How to Enter Validation Rules (Simple)

- For discrete sets of numbers or strings:
 - Set notation works
 - Stata's numlists work for numbers
- For continuous ranges of numbers:
 - Set notation works: round brackets (and) do not include endpoints, square brackets, [] do include endpoints
- Logic works, using Stata's operators
 - Parentheses do not work, unfortunately

How to Enter Validation Rules (Simple)

- For discrete sets of numbers or strings:
 - Set notation works
 - Stata's numlists work for numbers
- For continuous ranges of numbers:
 - Set notation works: round brackets (and) do not include endpoints, square brackets, [] do include endpoints
- Logic works, using Stata's operators
 - Parentheses do not work, unfortunately

How to Enter Validation Rules (Simple)

- For discrete sets of numbers or strings:
 - Set notation works
 - Stata's numlists work for numbers
- For continuous ranges of numbers:
 - Set notation works: round brackets (and) do not include endpoints, square brackets, [] do include endpoints
- Logic works, using Stata's operators
 - Parentheses do not work, unfortunately

- For discrete sets of numbers or strings:
 - Set notation works
 - Stata's numlists work for numbers
- For continuous ranges of numbers:
 - Set notation works: round brackets (and) do not include endpoints, square brackets, [] do include endpoints
- Logic works, using Stata's operators
 - Parentheses do not work, unfortunately

- For discrete sets of numbers or strings:
 - Set notation works
 - Stata's numlists work for numbers
- For continuous ranges of numbers:
 - Set notation works: round brackets (and) do not include endpoints, square brackets, [] do include endpoints
- Logic works, using Stata's operators
 - Parentheses do not work, unfortunately

- For discrete sets of numbers or strings:
 - Set notation works
 - Stata's numlists work for numbers
- For continuous ranges of numbers:
 - Set notation works: round brackets (and) do not include endpoints, square brackets, [] do include endpoints
- Logic works, using Stata's operators
 - Parentheses do not work, unfortunately

- For discrete sets of numbers or strings:
 - Set notation works
 - Stata's numlists work for numbers
- For continuous ranges of numbers:
 - Set notation works: round brackets (and) do not include endpoints, square brackets, [] do include endpoints
- Logic works, using Stata's operators
 - Parentheses do **not** work, unfortunately

- Use 'self' to refer to the variable being checked
- Use 'valid' for valid values, and 'error' for invalid values
- Avoid branching and looping (though it can be used).

- Use 'self' to refer to the variable being checked
- Use 'valid' for valid values, and 'error' for invalid values
- Avoid branching and looping (though it can be used).

- Use 'self' to refer to the variable being checked
- Use 'valid' for valid values, and 'error' for invalid values
- Avoid branching and looping (though it can be used).

How to Avoid Reentering Rules

- Can use like varname to check just like another variable.
- One big reason for using 'self'!

How to Avoid Reentering Rules

- Can use like varname to check just like another variable.
- One big reason for using 'self'!

Outline

- Goals
 - Goals for Validation
- 2 Methods
 - Exploiting Stata
 - Implementation
- 3 Demo of package
 - Example 1 dataset
- 4 Finshing Up
 - Questions?

Looking at the Variables

- describe is enough to set up the validation rules
- Ha! How often does that happen?

Looking at the Variables

- describe is enough to set up the validation rules
- Ha! How often does that happen?

Entering the Rules

- Type in ckvaredit, and work along
- Use the Reset button if changes have been saved but do not seem to register

Entering the Rules

- Type in ckvaredit, and work along
- Use the Reset button if changes have been saved but do not seem to register

Check the Data

- Try ckvar
- Drop the error variables, and try ckvar, total(allerrors)
- All Done!

Check the Data

- Try ckvar
- Drop the error variables, and try ckvar, total(allerrors)
- All Done!

Check the Data

- Try ckvar
- Drop the error variables, and try ckvar, total(allerrors)
- All Done!

Outline

- Goals
 - Goals for Validation
- Methods
 - Exploiting Stata
 - Implementation
- Demo of package
 - Example 1 dataset
- 4 Finshing Up
 - Questions?

Questions?

Ask away!