

frbussupport.Rnw: Create Support Files

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0.1 stdver_varinfo

This code creates the varinfo.csv support file, parsing the data from the fixed format text file "frbus_package/mods/stdver_varinfo" into a data.frame.

```
raw = readLines("frbus_package/mods/stdver_varinfo")
```

Here we define the fixed length fields. The only reference to the original file seems to be in the stochsim program, to determine which are stochastic equations. There seems to be information in this file that is not used anywhere. I've made up names for some fields to use until I find better information.

```
flds = c("seq", "vname", "vdesc", "vtype", "vrule", "sector",
         "var7", "stoch", "var8", "var9", "decomp")
start = c(1, 5, 16, 111, 115, 117, 130, 132, 135, 137, 139)
length = c(3, 8, 94, 4, 1, 13, 1, 2, 1, 1, 2)
parse = data.frame(flds, start, length)
rownames(parse) = parse$flds
(parse = subset(parse, select = -c(flds)))

##      start length
## seq      1      3
## vname     5      8
## vdesc    16     94
## vtype   111      4
## vrule   115      1
## sector   117     13
## var7     130      1
## stoch    132      2
## var8     135      1
## var9     137      1
## decomp   139      2
```

Using the field definitions that I created above, I transform the file's information into a data.frame.

```
varinfo = data.frame(lapply(flds,
                           function(x) (trimws(substr(raw, parse[x, "start"],
                                                         sum(c(parse[x, "start"], parse[x, "length"], -1))))),
                           stringsAsFactors = FALSE))
colnames(varinfo) = flds
varinfo = varinfo[varinfo$vname != "ZZZBLANK", ]
rownames(varinfo) = varinfo[, "vname"]
varinfo$seq = as.numeric(as.character(varinfo$seq))
varinfo$var7 = as.numeric(as.character(varinfo$var7))
varinfo$var8 = as.numeric(as.character(varinfo$var8))
```

```

varinfo$var9 = as.numeric(as.character(varinfo$var9))
varinfo$decomp = as.numeric(as.character(varinfo$decomp))
str(varinfo)

## 'data.frame': 508 obs. of 11 variables:
## $ seq : num 1 2 3 4 5 6 7 8 9 10 ...
## $ vname : chr "CENG" "D01Q4" "D2002" "D2003" ...
## $ vdesc : chr "Consumption of crude energy (oil, coal, natural gas), 2009 $" "Dummy, destru
## $ vtype : chr "B.4" "X.7" "X.7" "X.7" ...
## $ vrule : chr "A" "" "" "" ...
## $ sector: chr "sector_c.5" "" "" "" ...
## $ var7 : num 4 1 1 1 1 1 1 1 1 1 ...
## $ stoch : chr "OT" "NO" "NO" "NO" ...
## $ var8 : num 1 0 0 0 0 0 0 0 0 0 ...
## $ var9 : num 0 0 0 0 0 0 0 0 0 0 ...
## $ decomp: num 16 27 27 27 14 27 14 14 27 27 ...

```

I haven't figured out what most of the varinfo fields are used for but we can examine the values.

```

varinfo[c("CENG", "PGDP"),]

##      seq vname
## CENG    1  CENG
## PGDP 216  PGDP
##
##                                     vdesc vtype
## CENG Consumption of crude energy (oil, coal, natural gas), 2009 $    B.4
## PGDP                                     Price index for GDP, cw      I
##      vrule      sector var7 stoch var8 var9 decomp
## CENG    A sector_c.5    4    OT    1    0    16
## PGDP    A sector_g.44   4    NO    0    1    22

varinfo$vname

##      [1] "CENG"      "D01Q4"      "D2002"      "D2003"      "D69"        "D79A"
##      [7] "D8095"      "D81"        "D83"        "D86"        "D87"        "DCON"
##     [13] "DDOCKM"      "DDOCKX"      "DELRFF"      "DEUC"        "DFMPRR"      "DFPDBT"
##     [19] "DFPEX"      "DFPSRP"      "DGLPRD"      "DMPALT"      "DMPEX"      "DMPGEN"
##     [25] "DMPINTAY"    "DMPRR"      "DMPSTB"      "DMPTAY"      "DMPTLR"      "DMPTLUR"
##     [31] "DMPTMAX"    "DMPTPI"      "DMPTR"      "DMPTRSH"     "DPADJ"      "DPGAP"
##     [37] "DRSTAR"      "EC"          "ECD"        "ECH"        "ECNIA"      "ECNIA"
##     [43] "ECO"        "EGF"        "EGFI"      "EGFIN"      "EGFIT"      "EGFL"
##     [49] "EGFLN"      "EGFLT"      "EGFN"      "EGFO"      "EGFON"      "EGFOT"
##     [55] "EGPDIN"      "EGS"        "EGSI"      "EGSIN"      "EGSIT"      "EGSL"
##     [61] "EGSLN"      "EGSLT"      "EGSN"      "EGSO"      "EGSON"      "EGSOT"
##     [67] "EH"         "EHN"        "EI"         "EIN"        "EM"         "EMN"

```

##	[73]	"EMO"	"EMON"	"EMP"	"EMPN"	"EMPT"	"EPD"
##	[79]	"EPDN"	"EPI"	"EPIN"	"EPS"	"EPSN"	"EX"
##	[85]	"EXN"	"FCBN"	"FCBRN"	"FGDP"	"FGDPT"	"FNICN"
##	[91]	"FNILN"	"FNIN"	"FNIRN"	"FPC"	"FPCM"	"FPI10"
##	[97]	"FPI10T"	"FPIC"	"FPITRG"	"FPX"	"FPXM"	"FPXR"
##	[103]	"FPXRR"	"FPXRRT"	"FRL10"	"FRS10"	"FRSTAR"	"FTCIN"
##	[109]	"FXGAP"	"FYNICN"	"FYNILN"	"FYNIN"	"GFDBTN"	"GFDRT"
##	[115]	"GFINTN"	"GFS"	"GFSN"	"GFSRPN"	"GFSRT"	"GFSUB"
##	[121]	"GFSUBN"	"GFT"	"GFTN"	"GFTRD"	"GFTRT"	"GSDBTN"
##	[127]	"GSDRT"	"GSINTN"	"GSSRPN"	"GSSRT"	"GSSUB"	"GSSUBN"
##	[133]	"GST"	"GSTN"	"GSTRD"	"GSTRT"	"HGEMP"	"HGGDP"
##	[139]	"HGGDPT"	"HGPCDR"	"HGPDR"	"HGPIR"	"HGPKIR"	"HGPPSR"
##	[145]	"HGVDP"	"HGVPI"	"HGVPs"	"HGx"	"HGYNID"	"HKS"
##	[151]	"HKSR"	"HLEPT"	"HLPRDT"	"HMFPT"	"HQLFPR"	"HQLWW"
##	[157]	"HUQPCT"	"HUXB"	"HXBt"	"JCCACN"	"JCCAN"	"JKCD"
##	[163]	"JRCD"	"JRH"	"JRPD"	"JRPI"	"JRPS"	"JYGfEN"
##	[169]	"JYGfGN"	"JYGSEN"	"JYGSGN"	"JYNCN"	"KCD"	"KH"
##	[175]	"KI"	"KPD"	"KPI"	"KPS"	"KS"	"LEF"
##	[181]	"LEFT"	"LEH"	"LEO"	"LEP"	"LEPPOT"	"LES"
##	[187]	"LEST"	"LEUC"	"LF"	"LFPR"	"LHP"	"LPRDT"
##	[193]	"LQUALT"	"LUR"	"LURBLS"	"LURNAT"	"LURTRSH"	"LWW"
##	[199]	"MEI"	"MEP"	"MFPT"	"N16"	"PCDR"	"PCENG"
##	[205]	"PCENGR"	"PCER"	"PCFR"	"PCFRT"	"PCHR"	"PCNIA"
##	[211]	"PCOR"	"PCPI"	"PCPIX"	"PCSTAR"	"PCXFE"	"PGDP"
##	[217]	"PGFIR"	"PGFL"	"PGFOR"	"PGSIR"	"PGSL"	"PGSOR"
##	[223]	"PHOUSE"	"PHR"	"PIC4"	"PICNGR"	"PICNIA"	"PICX4"
##	[229]	"PICXFE"	"PIECI"	"PIGDP"	"PIPL"	"PIPXNC"	"PITARG"
##	[235]	"PITRSH"	"PKIR"	"PKPDR"	"PL"	"PLMIN"	"PLMINR"
##	[241]	"PMO"	"PMP"	"POIL"	"POILR"	"POILRT"	"PPDR"
##	[247]	"PPIR"	"PPSR"	"PTR"	"PWSTAR"	"PXB"	"PXG"
##	[253]	"PXNC"	"PXP"	"PXR"	"QEC"	"QECD"	"QECO"
##	[259]	"QEH"	"QEPD"	"QEPI"	"QEPS"	"QKIR"	"QLEOR"
##	[265]	"QLEP"	"QLF"	"QLFPR"	"QLHP"	"QLWW"	"QPCNIA"
##	[271]	"QPL"	"QPMO"	"QPXG"	"QPXNC"	"QPXP"	"QYNIDN"
##	[277]	"RBBB"	"RBBBE"	"RBBBP"	"RCAR"	"RCCD"	"RCCH"
##	[283]	"RCGAIN"	"REQ"	"REQP"	"RFF"	"RFFALT"	"RFFE"
##	[289]	"RFFFIX"	"RFFGEN"	"RFFINTAY"	"RFFMIN"	"RFFRULE"	"RFFTAY"
##	[295]	"RFFTLR"	"RFNICT"	"RFRS10"	"RFYNIC"	"RFYNIL"	"RG10"
##	[301]	"RG10E"	"RG10P"	"RG30"	"RG30E"	"RG30P"	"RG5"
##	[307]	"RG5E"	"RG5P"	"RGFINT"	"RGW"	"RME"	"RPD"
##	[313]	"RRFFE"	"RRFIX"	"RRMET"	"RRTR"	"RSPNIA"	"RSTAR"
##	[319]	"RTB"	"RTBE"	"RTINV"	"RTPD"	"RTPI"	"RTPS"
##	[325]	"RTR"	"T47"	"TAPDAD"	"TAPDD"	"TAPDDP"	"TAPDS"
##	[331]	"TAPDT"	"TAPSAD"	"TAPSDA"	"TAPSSL"	"TFCIN"	"TFDIV"
##	[337]	"TFIBN"	"TFPN"	"TFSIN"	"TRFCI"	"TRFCIM"	"TRFIB"

```
## [343] "TRFP"      "TRFPM"      "TRFPT"      "TRFPTX"     "TRFSI"      "TRSCI"
## [349] "TRSCIT"    "TRSIB"      "TRSIBT"     "TRSP"       "TRSP"       "TRSP"
## [355] "TRSPTX"    "TRSSI"      "TRSSIT"     "TRYH"       "TSCIN"      "TSIBN"
## [361] "TSPN"      "TSSIN"      "UCES"       "UCFS"       "UEMOT"      "UEMP"
## [367] "UFCBR"     "UFNIR"      "UFPCM"      "UFPXM"      "UFTCIN"     "UGFDBT"
## [373] "UGSDBT"    "UGSINT"     "UGSSUB"     "UJCCA"      "UJCCAC"     "UJYGFE"
## [379] "UJYGFG"    "UJYGSE"     "UJYGSG"     "ULEF"       "ULES"       "UPCPI"
## [385] "UPCPIX"    "UPGFL"      "UPGSL"      "UPKPD"      "UPMP"       "UPXB"
## [391] "UQPCT"     "UVEQA"      "UVPD"       "UVPI"       "UVPS"       "UXBT"
## [397] "UXENG"     "UYD"        "UYHI"       "UYHLN"      "UYHPTN"     "UYHSN"
## [403] "UYHTN"     "UYL"        "UYNI"       "UYNICP"     "UY"         "UYSEN"
## [409] "VEO"       "VEOA"       "VPD"        "VPI"        "VPS"        "WDNFCN"
## [415] "WPO"       "WPON"       "WPS"        "WPSN"       "XB"         "XBN"
## [421] "XBO"       "XBT"        "XENG"       "XFS"        "XFSN"       "XG"
## [427] "XGAP"      "XGAP2"      "XGDE"       "XGDEN"      "XGDI"       "XGDIN"
## [433] "XGDO"      "XGDP"       "XGDPN"      "XGDPT"      "XGDPTN"     "XGN"
## [439] "XGO"       "XGPOT"      "XP"         "XPN"        "YCSN"       "YDN"
## [445] "YGFSN"     "YGSSN"      "YH"         "YHGAP"      "YHIBN"      "YHIN"
## [451] "YHL"       "YHLN"       "YHP"        "YHPCD"      "YHPGAP"     "YHPNTN"
## [457] "YHPSHR"    "YHPTN"      "YHSHR"      "YHSN"       "YHT"        "YHTGAP"
## [463] "YHTN"      "YHTSHR"     "YKIN"       "YKPDN"      "YKPSN"      "YMSDN"
## [469] "YNICPN"    "YNIDN"      "YNIIN"      "YNILN"      "YNIN"       "YNISEN"
## [475] "YPN"       "ZDIVGR"     "ZECD"       "ZECO"       "ZEH"        "ZGAP05"
## [481] "ZGAP10"    "ZGAP30"     "ZGAPC2"     "ZLHP"       "ZPI10"      "ZPI10F"
## [487] "ZPI5"      "ZPIB5"      "ZPIC30"     "ZPIC58"     "ZPICXFE"    "ZPIECI"
## [493] "ZRFF10"    "ZRFF30"     "ZRFF5"      "ZVPD"       "ZVPI"       "ZVPS"
## [499] "ZXBD"      "ZXBI"       "ZXBS"       "ZYH"        "ZYHP"       "ZYHPST"
## [505] "ZYHST"     "ZYHT"       "ZYHTST"     "ZYNID"
```

```
table(varinfo$vttype)
```

```
##
##      B B.1 B.2 B.3 B.4 B.6 B.7      I I.3 X.1 X.2 X.3 X.4 X.5 X.7
## 54  12   1   1  73   1   4 239   1   3  72  34   6   1   6
```

```
table(varinfo$vrule)
```

```
##
##           A
## 126 382
```

```
str(varinfo$sector)
```

```
## chr [1:508] "sector_c.5" "" "" "" "" "" "" "" "" ...
```

```
summary(varinfo$var7)
```

```
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.   NA's
##      1.0     1.0     4.0     2.7    4.0     5.0     4

table(varinfo$var7)

##
##      1    2    3    4    5
## 201   25    3 274    1

table(varinfo$stoch)

##
##  FN  GV  IN  IS  LB  NO  OT  PR  RW  ST
##  12  15   4  10   7 437  10   9   2   2

table(varinfo$var8)

##
##      0    1    2    7
## 413   90    1    1

table(varinfo$var9)

##
##      0    1    2    3    4
## 370   24   80   21   10

table(varinfo$decomp)

##
##  1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
## 30  2 33  5  5  4 12  4  7  7 11  3 24 49 34  8  8 30  2 11 16 53 44 26 17
## 26 27 28 29
## 32 18 12  1

table(varinfo$vtype,varinfo$stoch)

##
##      FN  GV  IN  IS  LB  NO  OT  PR  RW  ST
##  B      0   0   0   0   6 46   0   0   0   2
##  B.1    3   5   0   0   0  2   0   2   0   0
##  B.2    0   0   0   0   0  1   0   0   0   0
##  B.3    0   0   0   0   0  1   0   0   0   0
##  B.4    9  10   4  10   0 21  10   7   2   0
##  B.6    0   0   0   0   0  1   0   0   0   0
##  B.7    0   0   0   0   1  3   0   0   0   0
##  I      0   0   0   0   0 239   0   0   0   0
```

```
##      I.3      0      0      0      0      0      1      0      0      0      0
##      X.1      0      0      0      0      0      3      0      0      0      0
##      X.2      0      0      0      0      0     72      0      0      0      0
##      X.3      0      0      0      0      0     34      0      0      0      0
##      X.4      0      0      0      0      0      6      0      0      0      0
##      X.5      0      0      0      0      0      1      0      0      0      0
##      X.7      0      0      0      0      0      6      0      0      0      0
```

```
table(varinfo$var7,varinfo$var9)
```

```
##
##           0      1      2      3      4
##      1 201      0      0      0      0
##      2   4      0     21      0      0
##      3   2      0      0      1      0
##      4 161     24     59     20     10
##      5   1      0      0      0      0
```

```
table(varinfo$var7,varinfo$stoch)
```

```
##
##           FN  GV  IN  IS  LB  NO  OT  PR  RW  ST
##      1  10   9   0   0   5 173   0   2   1   1
##      2   2   0   0   0   0  23   0   0   0   0
##      3   0   0   0   0   0   3   0   0   0   0
##      4   0   6   4  10   2 233  10   7   1   1
##      5   0   0   0   0   0   1   0   0   0   0
```

```
table(varinfo$var8,varinfo$stoch)
```

```
##
##           FN  GV  IN  IS  LB  NO  OT  PR  RW  ST
##      0  12   9   0   0   5 383   0   2   1   1
##      1   0   6   3  10   2  50  10   7   1   1
##      2   0   0   0   0   0   1   0   0   0   0
##      7   0   0   1   0   0   0   0   0   0   0
```

```
table(varinfo$var9,varinfo$stoch)
```

```
##
##           FN  GV  IN  IS  LB  NO  OT  PR  RW  ST
##      0  12  15   4  10   7 299  10   9   2   2
##      1   0   0   0   0   0  24   0   0   0   0
##      2   0   0   0   0   0  80   0   0   0   0
##      3   0   0   0   0   0  21   0   0   0   0
##      4   0   0   0   0   0  10   0   0   0   0
```

Here we create the support file from the data.frame.

```
write.csv(varinfo,"support/varinfo.csv")
```

0.2 stdver_coeffs.txt

```
raw = readLines("frbus_package/mods/stdver_coeffs.txt")
str(raw)
```

```
## chr [1:173] "" ...
```

```
coeffs = lapply(raw[which(raw!=" " & raw!="theend")], function(x) strsplit(x, "\t"))
coeffs = data.frame(
  name = unlist(lapply(coeffs, function(x) x[[1]][1])),
  len = as.numeric(lapply(coeffs, function(x) x[[1]][2])),
  vec = unlist(lapply(coeffs, function(x) x[[1]][3])),
  stringsAsFactors = FALSE)
coeffs$vec = lapply(coeffs$vec, function(x) as.numeric(strsplit(x, ",")[1]))
row.names(coeffs) = coeffs$name
coeffs["y_emo", "vec"]
```

```
## [[1]]
```

```
## [1] 0.01701497 -0.19847532 1.35232826 1.67397668 0.35662832 0.38031136
```

```
coeffs["y_emo", "vec"][[1]][3]
```

```
## [1] 1.352328
```

```
coeffs["y_emo", "len"]
```

```
## [1] 6
```

```
length(coeffs["y_emo", "vec"][[1]])
```

```
## [1] 6
```

```
# rownames(coeffs)
# coeffs$vec
# coeffs = subset(coeffs, select=c(vec))
# str(coeffs)
# coeffs["y_emo"]
# coeffs$vec["y_emo"]
```


0.3 stdver_eqs.txt

```
raw = readLines("frbus_package/mods/stdver_eqs.txt")
eqs = paste(raw[which(raw!=" " & raw!="theend")], collapse="  
")
eqs = gsub("_  
", "", eqs)
eqs = gsub("[[:space:]]+", "", eqs)
eqs = strsplit(eqs, "  
")
eqs = eqs[[1]]
names = toupper(gsub(":.*$", "", eqs))
eqs = gsub("^.*:", "", eqs)
stdver = data.frame(eqs, row.names = names, stringsAsFactors = FALSE)
str(stdver)

## 'data.frame': 386 obs. of 1 variable:
## $ eqs: chr "d(log(ceng),0,1)-ceng_aerr=y_ceng(1)*(log(ceng(-1))-log(xg(-1)*veoa(-1)))+y_ceng(2)*d(log(ceng),0,1)-ceng_aerr=100*xgdpn/xgdp"

stdver[c("CENG", "PGDP"), "eqs"]

## [1] "d(log(ceng),0,1)-ceng_aerr=y_ceng(1)*(log(ceng(-1))-log(xg(-1)*veoa(-1)))+y_ceng(2)*d(log(ceng),0,1)-ceng_aerr=100*xgdpn/xgdp"
## [2] "pgdp-pgdp_aerr=100*xgdpn/xgdp"
```

0.4 Chunks

0.5 Index