R Wide Data to Long Data Example (TIDYR Pivot Longer)

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1 Wide to Long

Go to the **RMD**, **R**, **PDF**, or **HTML** version of this file. Go back to fan's REconTools Package, R Code Examples Repository (bookdown site), or Intro Stats with R Repository (bookdown site).

Using the pivot_wider function in tidyr to reshape panel or other data structures

1.1 Generated Matrix by States to Long Table

A matrix of ev given states, rows are states and cols are shocks. Convert to Long table with shock and state values and ev.

Generated Matrix by States to Long Table where state values are stored as variables, with correct value labels for states:

1. Generate a matrix
2. Convert matrix to tibble
3. Tibble make longer, and store column and row id var names

```
# Generate A Matrix
set.seed(123)
ar_a <- c(1.1,5.1)
ar_z <- seq(-2.5, 2.53, length.out=11)
mt_ev = matrix(rnorm(ar_a*ar_z), nrow=length(ar_a), ncol=length(ar_z))

# Name Matrix
rownames(mt_ev) <- paste0('ai', seq(1:length(ar_a)))
colnames(mt_ev) <- paste0('zi', seq(1:length(ar_z)))

# to tibble
tb_ev <- as_tibble(mt_ev) %>% rowid_to_column(var = "ai")

# longer
tb_ev_long <- tb_ev %>%
  pivot_longer(cols = starts_with('zi'),
               names_to = c('zi'),
               names_pattern = paste0("zi(.*)"),
               values_to = "ev") %>%
```

```
  mutate(zi = as.numeric(zi))

# Merge with a and z values
tb_ev_long <- tb_ev_long %>%
  left_join(as_tibble(ar_a) %>%
              rowid_to_column(var = "ai") %>%
              rename(a = value)
              , by = 'ai') %>%
  left_join(as_tibble(ar_z) %>%
              rowid_to_column(var = "zi") %>%
              rename(z = value),
            by = 'zi') %>%
  select(a,ai,z,zi,ev)

# Display
kable(tb_ev) %>% kable_styling_fc_wide()
```

ai	zi1	zi2	zi3	zi4	zi5	zi6	zi7	zi8	zi9	zi10	zi11
1	-0.5604756	1.5587083	0.1292877	0.4609162	-0.6868529	1.2240818	-0.2301775	0.0705084	1.7150650	-1.2650612	-0.445662
2	-0.2301775	0.0705084	1.7150650	-1.2650612	-0.4456620	-0.5604756	1.5587083	0.1292877	0.4609162	-0.6868529	1.224082

```
kable(tb_ev_long) %>% kable_styling_fc()
```

a	ai	z	zi	ev
1.1	1	-2.500	1	-0.5604756
1.1	1	-1.997	2	1.5587083
1.1	1	-1.494	3	0.1292877
1.1	1	-0.991	4	0.4609162
1.1	1	-0.488	5	-0.6868529
1.1	1	0.015	6	1.2240818
1.1	1	0.518	7	-0.2301775
1.1	1	1.021	8	0.0705084
1.1	1	1.524	9	1.7150650
1.1	1	2.027	10	-1.2650612
1.1	1	2.530	11	-0.4456620
5.1	2	-2.500	1	-0.2301775
5.1	2	-1.997	2	0.0705084
5.1	2	-1.494	3	1.7150650
5.1	2	-0.991	4	-1.2650612
5.1	2	-0.488	5	-0.4456620
5.1	2	0.015	6	-0.5604756
5.1	2	0.518	7	1.5587083
5.1	2	1.021	8	0.1292877
5.1	2	1.524	9	0.4609162
5.1	2	2.027	10	-0.6868529
5.1	2	2.530	11	1.2240818