Thesis code knit

2024-01-05

```
library(pacman)
p_load(haven, tidyverse, prodest, estprod, plm, huxtable)
```

```
#load 2009-2013 Enterprise Survey data
data1 <- read_dta("C:\\Users\\Aayush\\Documents\\files prior to 1-7-2024\\Nepal_2009_2013.dta")
```

```
data2 <- data1 %>%
  # Select only manufacturing firms
  filter(a0 == 1) %>%
  #Select only rows valid for balanced panel
  group_by(id2009) %>%
  filter(all(c(2009, 2013) %in% year)) %>%
  ungroup()
```

```
data3 <- data2 %>%

  #select necessary columns for data analysis
  select(year, id2009, d2, n7a, n2a, n2e,e11,b7,k8, a6b,j30c,j30a,l1,b5,l4a,b7,d3c,e6,b2b,c30a,
         e1) %>%

  #filter rows with values greater than or equal to 0
  filter(if_all(c(d2,n7a,n2a,n2e,e11,b7,k8,a6b,j30c,j30a,l1,b5,l4a,b7,d3c,e6,b2b,c30a,e1), ~.>= 0)) %>%

  #adding no. of years of operation column to the data
  mutate(yofop = ifelse(year == 2009, 2009 - b5, ifelse(year == 2013, 2013 - b5, NA))) %>%

  #renaming columns
  rename(sales = d2, capital = n7a, labor = n2a, interm = n2e, ID = id2009, Informal="e11", Experience=
         Credit="k8",Size="a6b", Foreigntech="e6", Bussiness_permit="j30c", Tax_burden="j30a", local="e

  #take natural log of certain columns
  mutate(across(c(sales, capital,labor,interm), ~log(.))) %>%

  #Adjust for inflation for monetary values
  mutate(
    across(c(sales, capital, labor, interm),
           ~ifelse(year == 2013, (./142.52)*100, .))) %>%

  #Create dummy variables out of ordinal variables
  mutate(across(c(Informal, Credit, local, Foreigntech),
           ~case_when(. == 1 ~ 1,
                      TRUE ~ 0)),
    a6b = case_when(Size %in% c(1,2) ~ 1,
                    TRUE ~ 0))
```

```r
#levinsohn model
levinsohn_model <- levinsohn_petrin(data = data3, sales ~ labor | capital | interm,
                 id = "ID", time = "year", bootstrap = TRUE)
#olleypakes
olleypakes_model <- olley_pakes(data = data3, sales ~ labor | capital | interm,
                id = "ID", time = "year", bootstrap = TRUE)
```

```r
#filter again with coefficients
data4 <- data3%>%
  mutate(va=sales-interm) %>%
  mutate(logtfp=va-((levinsohn_model$t0[1])*labor)-((levinsohn_model$t0[2])*capital)) %>%
  mutate(avetfp=scale(logtfp))
```

```r
# Panel regression
# Create a panel data object
panel_data <- pdata.frame(data4, index = c("ID", "year"))

# Run fixed effects models
fixed_model1 <- plm(avetfp ~ Informal, data = panel_data, model = "within")
fixed_model2 <- plm(avetfp ~ Informal + Experience , data = panel_data, model = "within")
fixed_model3 <- plm(avetfp ~ Informal + Experience + Credit, data = panel_data, model = "within")
fixed_model4 <- plm(avetfp ~ Informal + Experience + Credit + Size, data = panel_data, model = "within"
fixed_model5 <- plm(avetfp ~ Informal + Experience + Credit + Size + Foreigntech, data = panel_data, mo
fixed_model6 <- plm(avetfp ~ Informal + Experience + Credit + Size + Foreigntech + Tax_burden, data = pa
fixed_model7 <- plm(avetfp ~ Informal + Experience + Credit + Size + Foreigntech + Tax_burden + Bussines
fixed_model8 <- plm(avetfp ~ Informal + Experience + Credit + Size + Foreigntech + Tax_burden + Bussines


# Store fixed effects models in a list
fixed_models <- list(
  fixed_model1, fixed_model2, fixed_model3, fixed_model4,
  fixed_model5, fixed_model6, fixed_model7, fixed_model8
)

# Generate stargazer table for panel regression
huxreg(fixed_models) %>%
  set_caption("Panel Regression Models") %>%
  set_number_format(2) %>%
  set_width(0.95) %>%
  set_height(0.95)
```

```
## Warning in huxreg(fixed_models): Unrecognized statistics: logLik, AIC
## Try setting ‘statistics‘ explicitly in the call to ‘huxreg()‘
```

Table 1: Panel Regression Models

	(1.00)	(2.00)	(3.00)	(4.00)	(5.00)	(6.00)	(7.00)	(8.00)
Informal	0.64 *	0.64 *	0.61 *	0.60 *	0.60 *	0.51	0.36	0.47
	(0.29)	(0.29)	(0.28)	(0.28)	(0.28)	(0.27)	(0.26)	(0.26)
Experience		0.02	0.02	0.01	0.02	0.02	0.02	0.03
		(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)
Credit			-0.47	-0.44	-0.49	-0.56 *	-0.50	-0.47
			(0.27)	(0.27)	(0.28)	(0.27)	(0.26)	(0.25)
Size				0.39	0.46	0.24	0.26	0.22
				(0.34)	(0.35)	(0.34)	(0.32)	(0.32)
Foreigntech					-0.57	-0.92	-0.78	-0.78
					(0.62)	(0.60)	(0.57)	(0.56)
Tax_burden						0.31 **	0.22 *	0.22 *
						(0.11)	(0.10)	(0.10)
Bussiness_permit							0.33 **	0.34 **
							(0.11)	(0.11)
local								0.63 *
								(0.29)
N	183.00	183.00	183.00	183.00	183.00	183.00	183.00	183.00
R2.00	0.06	0.07	0.11	0.12	0.13	0.23	0.31	0.35

*** $p < 0.00$; ** $p < 0.01$; * $p < 0.05$.