Europe and the US: Asset Ownership

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Paper

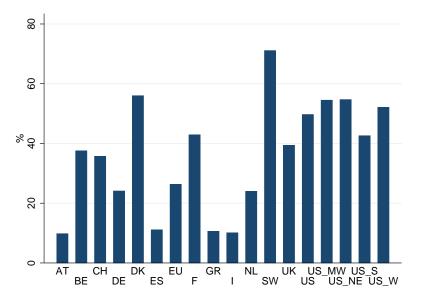
- "Economic Integration and Mature Portfolios"
 by Dimitris Christelis, Dimitris Georgarakos and Michael Haliassos
- Downloadable from

http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1089802

Data Sets

- Health and Retirement Study (HRS); started in 1992
- English Longitudinal Study of Aging (ELSA); started in 2002
- Survey of Health, Aging and Retirement in Europe (SHARE); started in 2004/05
- Frequency: biannual
- ▶ They use the 2004/05 wave.

Stock Ownership Rates (Christelis et al, 2009)



Counterfactual Analysis

▶ Define Participation Rate in country *i*: $PR^{i} = \frac{1}{N^{i}} \sum_{i=1}^{N^{i}} \mathbf{1}(S_{i}^{i} = 1)$

- Imagine true participation rate could be described by a linear regression, i.e. $PR^i = \frac{1}{N^i} \sum_{j=1}^{N^i} x_j^i \beta$, with $x_{1 \times K}$ and $\beta_{K \times 1}$
- ▶ Run OLS regression for *BASE* country and obtain $\hat{\beta}^B$
- ▶ Construct counterfactual for country i: $\hat{P}^{i,B} = \frac{1}{N'} \sum_{j=1}^{N'} x_j^i \hat{\beta}^B$
- Difference in Participation Rates between countries BASE and i

$$PR^{B} - PR^{i} = \underbrace{\left\{PR^{B} - \widehat{P}^{i,B}\right\}}_{I} + \underbrace{\left\{\widehat{P}^{i,B} - PR^{i}\right\}}_{II} \tag{1}$$

In fact, they use Probit which makes things slightly more difficult



Covariate Effect

Part I of Equation (1)

$$PR^{B} - \widehat{P}^{i,B} = \frac{1}{N^{B}} \sum_{j=1}^{N^{B}} x_{j}^{B} \beta^{B} - \frac{1}{N^{i}} \sum_{j=1}^{N^{i}} x_{j}^{i} \hat{\beta}^{B}$$
(2)

Assume $\hat{\beta}^B = \beta^B$, then Covariate effect (4) would simplify to

$$PR^{B} - \widehat{P}^{i,B} = \left(\frac{1}{N^{B}} \sum_{j=1}^{N^{B}} x_{j}^{B} - \frac{1}{N^{i}} \sum_{j=1}^{N^{i}} x_{j}^{i}\right) \beta^{B} = (\bar{x}^{B} - \bar{x}^{i}) \beta^{B}$$
(3)

 Difference in participation rates due to a different composition of household characteristics



Coefficient Effect

Part II of Equation (1)

$$\widehat{P}^{i,B} - PR^{i} = \frac{1}{N^{i}} \sum_{j=1}^{N^{i}} x_{j}^{i} \widehat{\beta}^{B} - \frac{1}{N^{i}} \sum_{j=1}^{N^{i}} x_{j}^{i} \beta$$

$$= \frac{1}{N^{i}} \sum_{j=1}^{N^{i}} x_{j}^{i} (\widehat{\beta}^{B} - \beta^{i})$$

$$= \bar{x}^{i} (\widehat{\beta}^{B} - \beta^{i})$$
(4)

- Difference in participation rates due to different coefficients
- Their interpretation:
 - β 's reflect market conditions rather than preferences.
 - The more integrated a set of countries or regions, the more similar the prevailing participation probabilities with a given configuration of characteristics and attitudes.

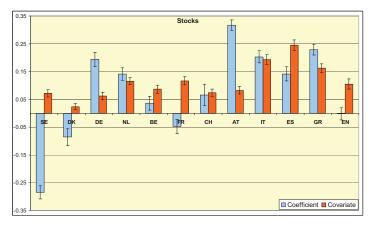
The β 's

				2nd Income	
Variable	United States			Quartile 3d Income	
v all andie	Coeff. Std. E		rror	Quartile	
				4th Income Quartile	
e	3.08	1.40	**	2nd Wealth	
ge squared	-1.84	1.02	*	Quartile 3d Wealth	
uple	0.05	0.04		Quartile	
low	-0.02	0.05		4th Wealth	
ever Married	0.08	0.07		Quartile Working	
ousehold Size	-0.11	0.01	***	Retired	
gh School aduate	0.53	0.04	***	Probability to	
t-Secondary	0.89	0.05	***	leave a bequest	
gree	0.09	0.03		Provides help to others	
d Health	-0.19	0.03	***	Engages in	
umber of ADL	-0.02	0.01		voluntary	
Recall Score	0.07	0.01	***	activities	
				Constant	

2nd Income

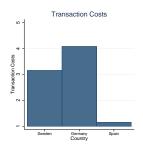
Stock Ownership Rates (Christelis et al, 2009)

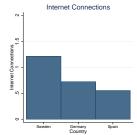
Figure 1: Decompositions of Differences in Stock Ownership Rates (relative to the US)

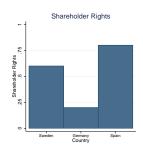


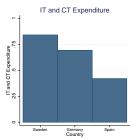
<u>Notes:</u> All decompositions refer to differences from the US. The error bands reflect 95% confidence intervals.

Stock Market Indicators (Christelis et al, 2009)





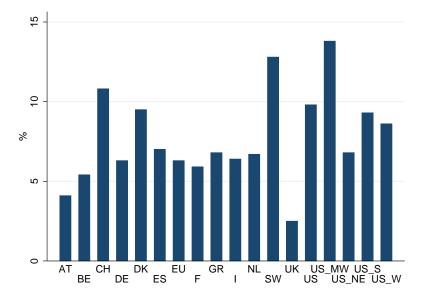




Stock Ownership Rates: Integration

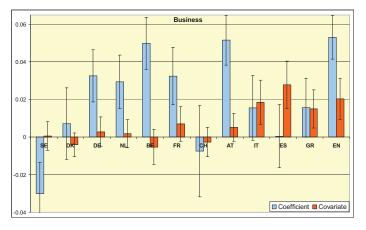
	Stocks					
Country/ Region	Total Difference	Difference due to Coefficients	Difference due to Covariates			
US Northeast	-0.002	-0.020	0.019 ***			
US South	0.119	0.083 ***	0.036 ***			
US West	0.025	0.024 *	0.001			
Sweden	-0.469	-0.461 ***	-0.008			
Denmark	-0.318	-0.279 ***	-0.039 ***			
Netherlands	0.001	-0.003	0.004			
Belgium	-0.133	-0.138 ***	0.004			
France	-0.187	-0.208 ***	0.020			
Switzerland	-0.116	-0.093 ***	-0.023			
Austria	0.144	0.140 ***	0.004			
Italy	0.140	0.091 ***	0.049 **			
Spain	0.131	0.065 **	0.066 **			
Greece	0.135	0.117 ***	0.018			
England	-0.153	-0.154 ***	0.001			

Business Ownership Rates (Christelis et al, 2009)



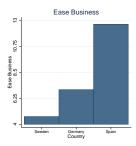
Business Ownership Rates (Christelis et al, 2009)

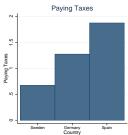
Figure 2: Decompositions of Differences in Business Ownership Rates (relative to the US)

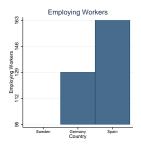


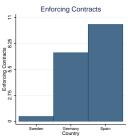
<u>Notes:</u> All decompositions refer to differences from the US. The error bands reflect 95% confidence intervals.

Business Indicators





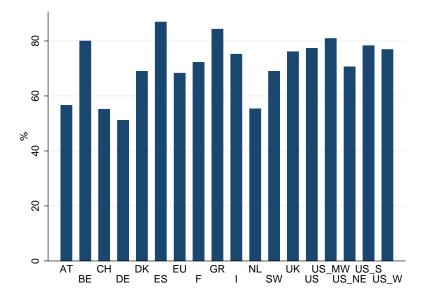




Business Ownership Rates: Integration

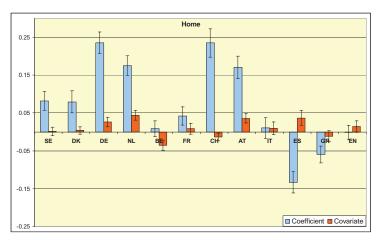
	Own Business					
Country/ Region	Total Difference	Difference due to Coefficients	Difference due to Covariates			
US Northeast	0.070	0.052 ***	0.019 ***			
US South	0.045	0.028 ***	0.018 ***			
US West	0.053	0.041 ***	0.012 ***			
Sweden	-0.065	-0.073 ***	0.008			
Denmark	-0.032	-0.033 ***	0.001			
Netherlands	-0.004	-0.012	0.007			
Belgium	0.009	0.002	0.007			
France	0.004	-0.007	0.011 *			
Switzerland	-0.046	-0.052 ***	0.006			
Austria	0.021	0.020 ***	0.001			
Italy	-0.001	-0.021 *	0.020 *			
Spain	-0.007	-0.036 ***	0.029 **			
Greece	-0.005	-0.007	0.002			
England	0.038	0.007	0.031 ***			

Home Ownership Rates (Christelis et al, 2009)



Home Ownership Rates (Christelis et al, 2009)

Figure 3: Decompositions of Differences in Home Ownership Rates (relative to the US)



Notes: All decompositions refer to differences from the US. The error bands reflect 95% confidence intervals.

Home Ownership Rates: Integration

	Home					
Country/ Region	Total Difference	Difference due to Coefficients	Difference due to Covariates			
US Northeast	0.102	0.066 ***	0.037 ***			
US South	0.025	-0.016	0.041 ***			
US West	0.041	0.021	0.020 ***			
Sweden	-0.178	-0.209 ***	0.030 *			
Denmark	-0.178	-0.180 ***	0.001			
Netherlands	-0.042	-0.106 ***	0.064 ***			
Belgium	-0.289	-0.274 ***	-0.015			
France	-0.211	-0.239 ***	0.029 *			
Switzerland	-0.040	-0.051 *	0.011			
Austria	-0.055	-0.099 ***	0.044 ***			
Italy	-0.241	-0.277 ***	0.036			
Spain	-0.358	-0.431 ***	0.074 **			
Greece	-0.332	-0.357 ***	0.025			
England	-0.249	-0.330 ***	0.081 **			