Age structure and the current account

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HIGHLIGHTS

- The current account balance depends on demographics.
- The young and the old reduce savings and the current account balance.
- China's current account would be much smaller were it not for its demographics.
- The surplus of Japan would be greater were it not for demographics.
- The surplus of Germany would be even greater were it not for demographics.

ARTICLE INFO

ABSTRACT

We adjust current account surpluses and deficits of 57 countries in the period 2005–2009 for differences in the age structure of their populations and find that these differences can account for a significant part of the variation in the data. Among the large countries we find that the adjustment increases the surpluses of Germany and Japan while the surpluses of China, Singapore, Hong Kong, Korea, Thailand, Indonesia and Malaysia are significantly diminished.

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1. Introduction

In this paper we explore the extent to which observed current account imbalances between countries in recent years can be attributed to differences in the population age structure and to which extent they can be attributed to other factors such as economic policy. Our hypothesis that savings behavior reflects age structure is based on the life-cycle hypothesis (see Modigliani, 1975). Thus a nation largely at work should have a larger current account surplus compared with another with proportionately more young and old people and the resulting imbalances do not necessarily indicate economic mismanagement.

2. Literature

Leff (1969) found a relationship between dependency rates and savings rates in a cross section of a large sample of countries. Later, Fry and Mason (1982) and Mason (1987, 1988) rekindled interest in the relationship by finding empirical support for a negative relationship between the youth dependency rate and savings rates. Taylor and Williamson (1994) explained the capital flow from Britain to Australia, Canada, the US and Argentina in the late 19th century by high youth dependency ratios in the New World. Higgins (1998) found, in a sample of 100 countries, that an increase in both the youth- and old-age dependency ratios is associated with lower savings and larger current account deficits. Taylor (1995) used demographic trends to predict that the growing elderly dependency ratios in the developed world and the falling youth dependency ratios in the developing world were likely to create a pattern of current account surpluses in some of the developing countries in the first part of the 21st century.

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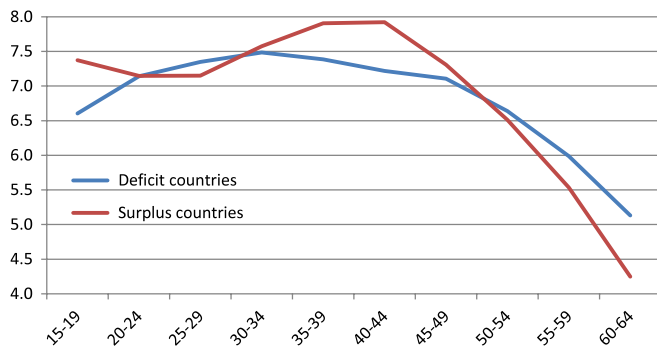*E-mail address:* gz@hi.is (G. Zoega).

Fig. 1. The average age structure in the top 10 surplus and deficit countries.

Lindh (1999) found a positive relationship between the share of the working-age population and savings for OECD countries. Bloom and Williamson (1998) attributed East Asia's economic miracle to its working age population growing at a much faster rate than its dependent population between 1965 and 1990. Herbertsson and Zoega (1999) detected a relationship between age structure and the current account in a sample of 86 countries. Finally, Lane and Milesi-Ferretti (2012) find that more rapidly aging advanced economies run more positive current account balances while a high old-age dependency ratio lowers the balance for developing countries.

3. Age structure and the current account

Our data consist of twelve population variables, measuring the proportion of population in each of twelve age groups, for 57 countries over the period 1980–2009.[1] Fig. 1 shows the age structure of the working age population in the top ten current account deficit and surplus countries, averaging over the period 2005–2009.

We note that the 35–49 age group is larger in the surplus countries than in the deficit countries while the share of population over 50 is higher in the deficit countries.

Fig. 2 shows the correlations between the share of the population in each of the twelve age groups and the current account surplus as a percentage of GDP over the period 1995–2009. The correlation is positive for ages 30–55 but negative for both younger and older groups. This implies that the larger the share of the population in the younger and the older age groups and the smaller the share of the middle-age group, the larger is the current account deficit. This is what the life-cycle theory would suggest.

4. Regressions

To further analyze the relationship between age structure and the current account we regress the current account surplus in percentages of GDP on three composite population variables, measured in percentages of the total population, in addition to the growth rate of output per capita and an interaction term between the youngest age group and growth, following Fry and Mason (1982).[2] We use data on all 57 countries from 1980–2009 for the regressions. The three age groups are 0–24, 25–64 and 65+.

Fig. 2. The correlation between the current account and population shares (1995–2009).

Table 1
The current account and the age structure.

	Pooled OLS	Fixed effects	
	(1)	(2)	(3)
Young	−0.550[***]	−0.607[***]	−0.615[***]
(0–24)	(0.142)	(0.168)	(0.188)
Old (65+)	−1.136[***]	−1.271[***]	−1.306[***]
	(0.335)	(0.461)	(0.488)
Growth per capita	−35.292		−14.889
	(30.262)		(29.232)
Growth* young	0.610		0.227
	(0.613)		(0.655)
Constant	33.921[***]		
	(9.389)		
Average fixed effect		37.387[***]	38.216[***]
		(11.212)	(12.367)
R^2	0.119	0.451	0.469
F-statistic	51.15	21.509	21.425
Observations	1518	1578	1518

Standard errors in parentheses.
[***] Denotes significance at the 1% level.

Two different estimators are used: The within-groups estimator, also known as the fixed-effects estimator, and the pooled OLS estimator. When the relationship is estimated with fixed effects, one of the population variables has to be omitted to prevent perfect multicollinearity. For this reason, the middle group variable was omitted. For consistency, we also omit the same variable in the pooled OLS regression. The models were estimated with robust standard errors clustered by country.

Column (1) of Table 1 presents the results of estimating the relationship with the pooled OLS estimator. The results are roughly consistent with the graphical representation in Fig. 2. In particular, the current account surplus is lower the larger is the share of the 65+ and the 0–24 age groups. The coefficients of the two growth terms are statistically insignificant. In columns (2) and (3) we repeat the estimation with the fixed-effects estimator, both with and without the growth terms. The fixed effects estimator yields very similar results, which indicates that the coefficient estimates in column (1) are not merely picking up the effect of omitted time-invariant country effects.[3] Because the demographic variables can be considered predetermined with respect to contemporaneous

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[1] The countries are: Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, Chile, China, Colombia, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hong Kong, Hungary, Iceland, India, Indonesia, Ireland, Israel, Italy, Japan, Korea, Rep., Latvia, Lithuania, Luxembourg, Malaysia, Mexico, Morocco Netherlands, New Zealand, Norway, Pakistan, Peru, Philippines, Poland, Portugal, Romania, Russia, Saudi Arabia, Singapore, Slovak Republic, Slovenia South Africa, Spain, Sweden, Switzerland, Thailand, Turkey, Ukraine, the United Kingdom and the United States.

[2] Economic growth is included because the younger cohorts enjoy higher permanent incomes and higher consumption when labor productivity growth is positive.
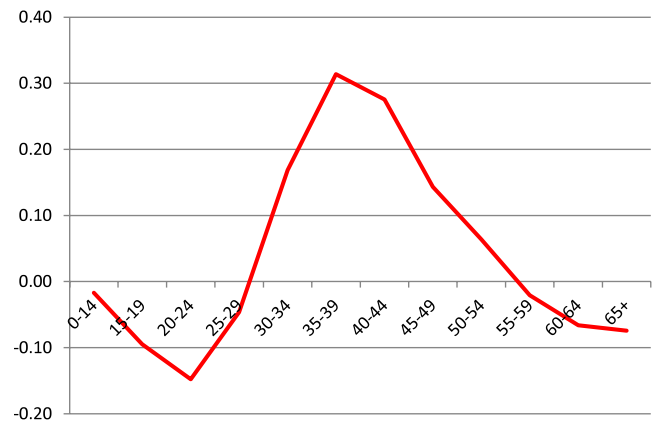
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[3] We also tried a specification with dummy variables for countries exposed to financial crises, oil producing countries, GDP per capita and government surpluses. Their inclusion did not significantly affect the estimated coefficients of the demographic variables and the last two turned out to be insignificant. Moreover, we found no structural breaks coinciding with European integration.