

Educational Mismatch in Low and Middle Income Countries

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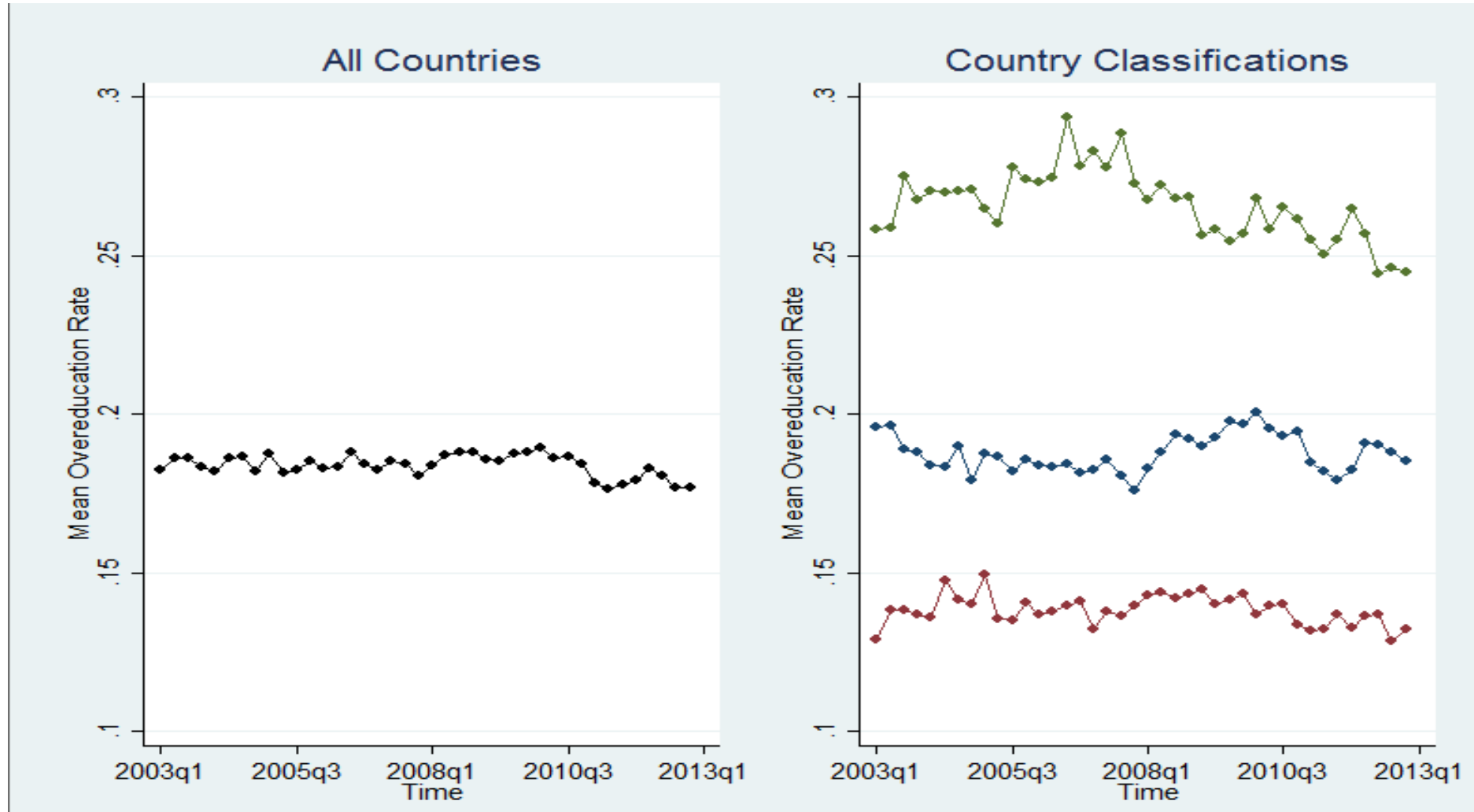
11-12 May 2017

Context

- A lot of research on the incidence, determinants and impacts of various forms of mismatch in developed countries
 - For reviews see McGuinness, Pouliakas and Redmond, 2017; McGuinness, 2006; Quintini, 2011; Cedefop, 2015
- Very little on low and middle income countries
 - Lack of data

Context

- Figure 1: Mean Overeducation Rate in Europe 2003-2013 (McGuinness, Bergin and Whelan, 2017)



Country Classification Legend: 1=Central (Blue); 2=Eastern (Red); 3=Periphery (Green).

Objectives of the study

- Incidence of over / undereducation across low and middle income countries
- How has over / undereducation changed over time?
- Determinants of over / undereducation
- Wage effects

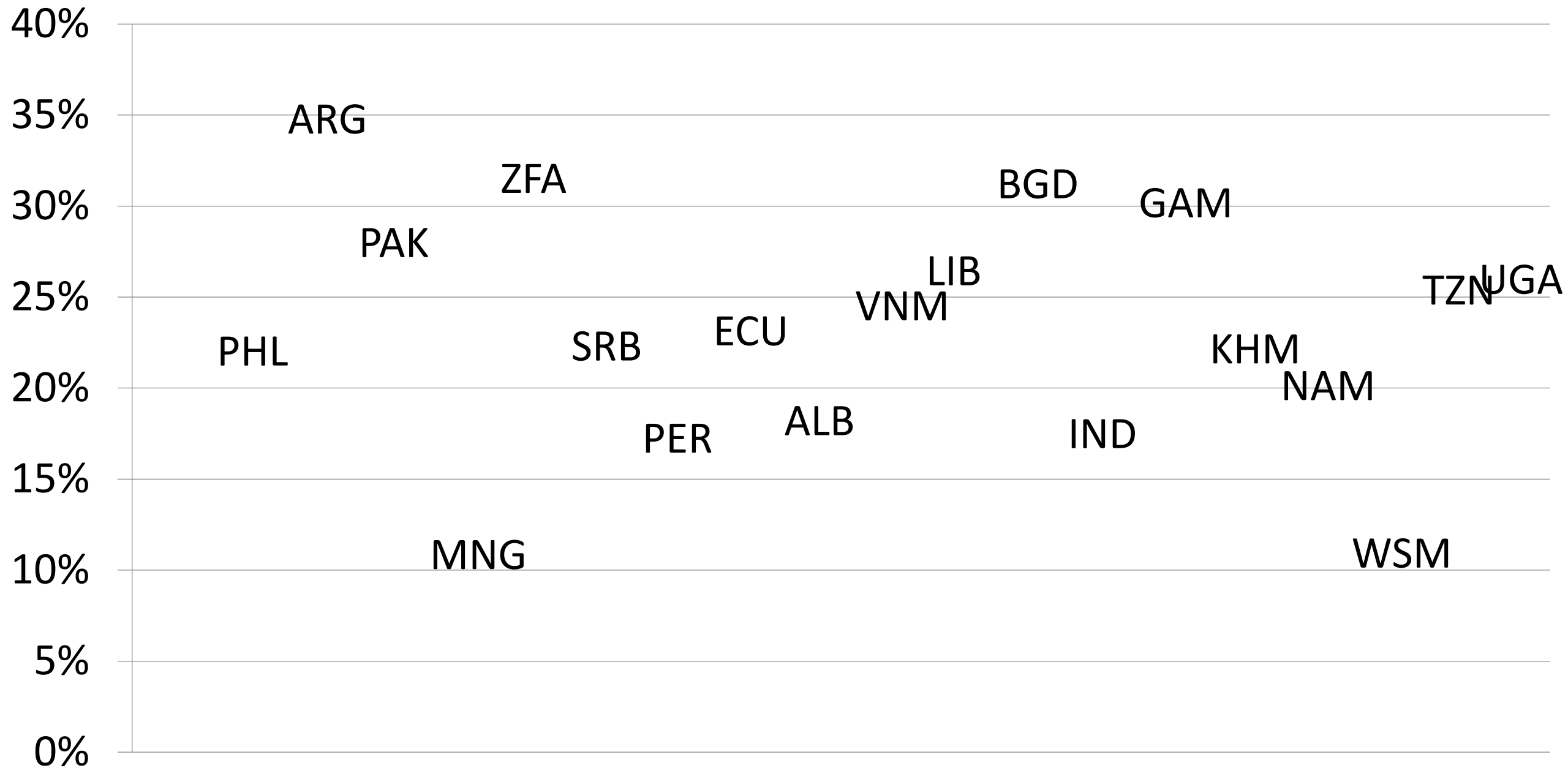
Approach

- LFS data for low and middle income countries
- Extract data on over / undereducation using the empirical approach
 - Overeducated if education $>$ mode level of education
 - Undereducated if education $<$ mode level of education
 - Over / undereducation within 2 digit ISCO occupation groups
- Data limitations and challenges
 - Inconsistencies in data within and across countries
 - Irregular collection of LFS data over time within some countries
 - LFS in native language
 - Missing data (e.g. only 1 digit ISCO available for some countries)

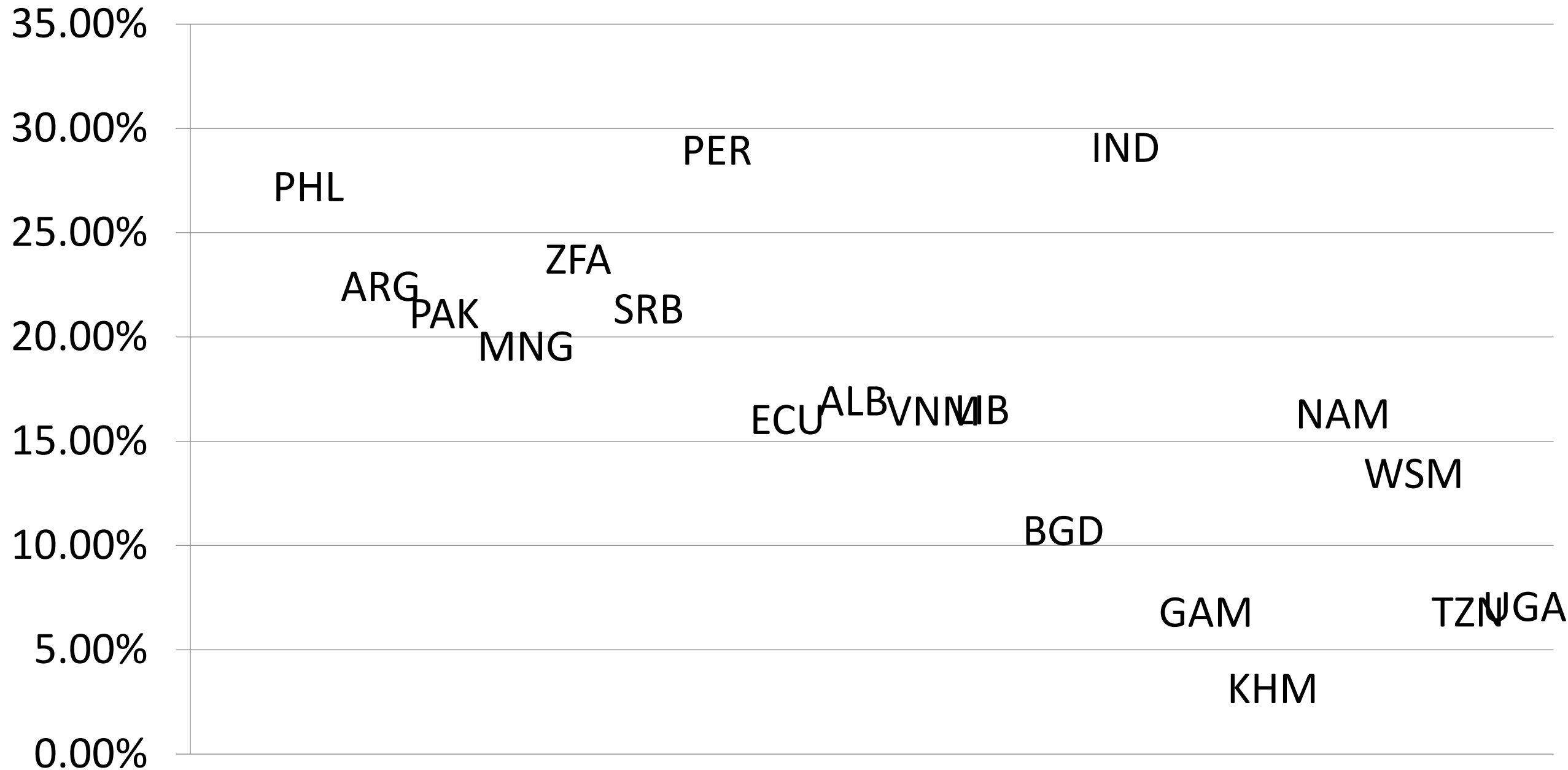
Country	Q/Y	'01	'02	'03	'04	'05	'06	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16
Philippines	Q	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0
Uruguay	Q	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0
Argentina	Q	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0
Pakistan	Q	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0
Mexico	Q	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
Dominican Republic	biannual	0	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0
Mongolia	Q	0	0	0	0	0	1	1	1	1	1	1	1	1	1	0	0
South Africa	Q	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1
Serbia	bi-annual	0	0	0	0	0	0	0	1	1	1	1	1	1	0	1	1
Peru	Q	0	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0
Vietnam	Y&Q	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0
Albania	Y&Q	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0
Honduras	Y/biannual	0	0	0	0	0	1	1	1	1	1	1	0	1	1	0	0
Egypt	Q	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0
Panama	Y	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0
Ecuador	Q	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1
Chile	Q	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0
Costa Rica	Q	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1
Bolivia	Y	0	0	0	0	1	0	0	0	1	0	1	1	1	1	0	0
Colombia	Y	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0
Brazil	Q	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0
Paraguay	Q	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0
Guatemala	bi-annual	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0
Thailand	Q	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0
Tunisia	Y	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
Moldova	Q	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
India	Q	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
Indonesia	Q	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Jordan	Y	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
Tunisia	Y	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
Bangladesh	Y	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0
Palestine	Y	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
Zambia	Y	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0

Country	Q3/Y	'01	'02	'03	'04	'05	'06	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16
Turkey	Y	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
Armenia	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Benin	Y	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Burkina Faso	Y	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Brunei	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Cambodia	Y	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Gambia	Y	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Ghana	Y	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Lao	Y	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Liberia	Y	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Malawi	Y	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Myanmar	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Namibia	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Nepal	Y	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Samoa	Y	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Sierra Leone	Y	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Tanzania	Q	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Timor-Leste	Q	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Uganda	Y	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Madagascar	Y	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Togo	Y	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0

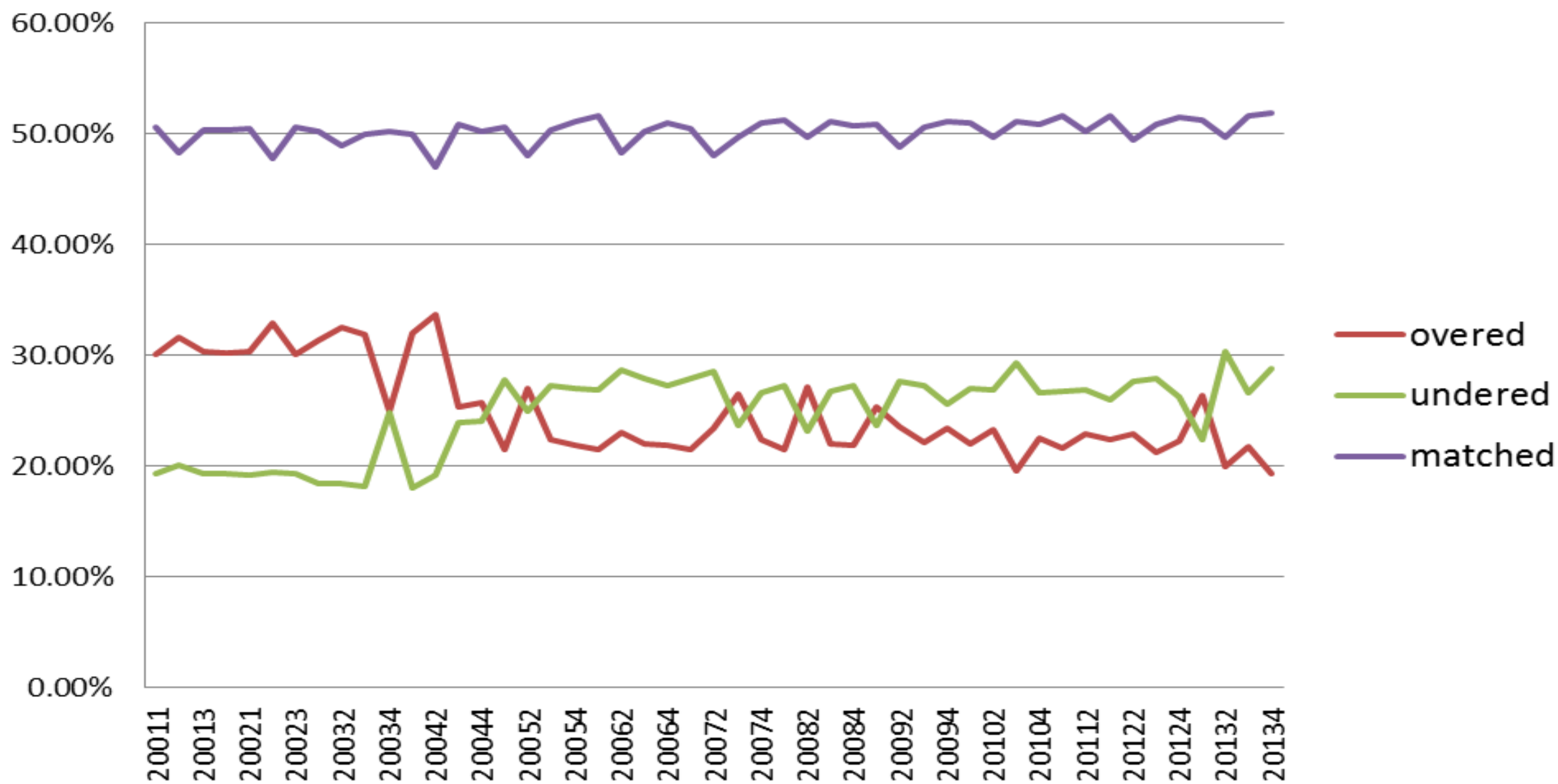
Overeducation (%): 2012 or nearest year



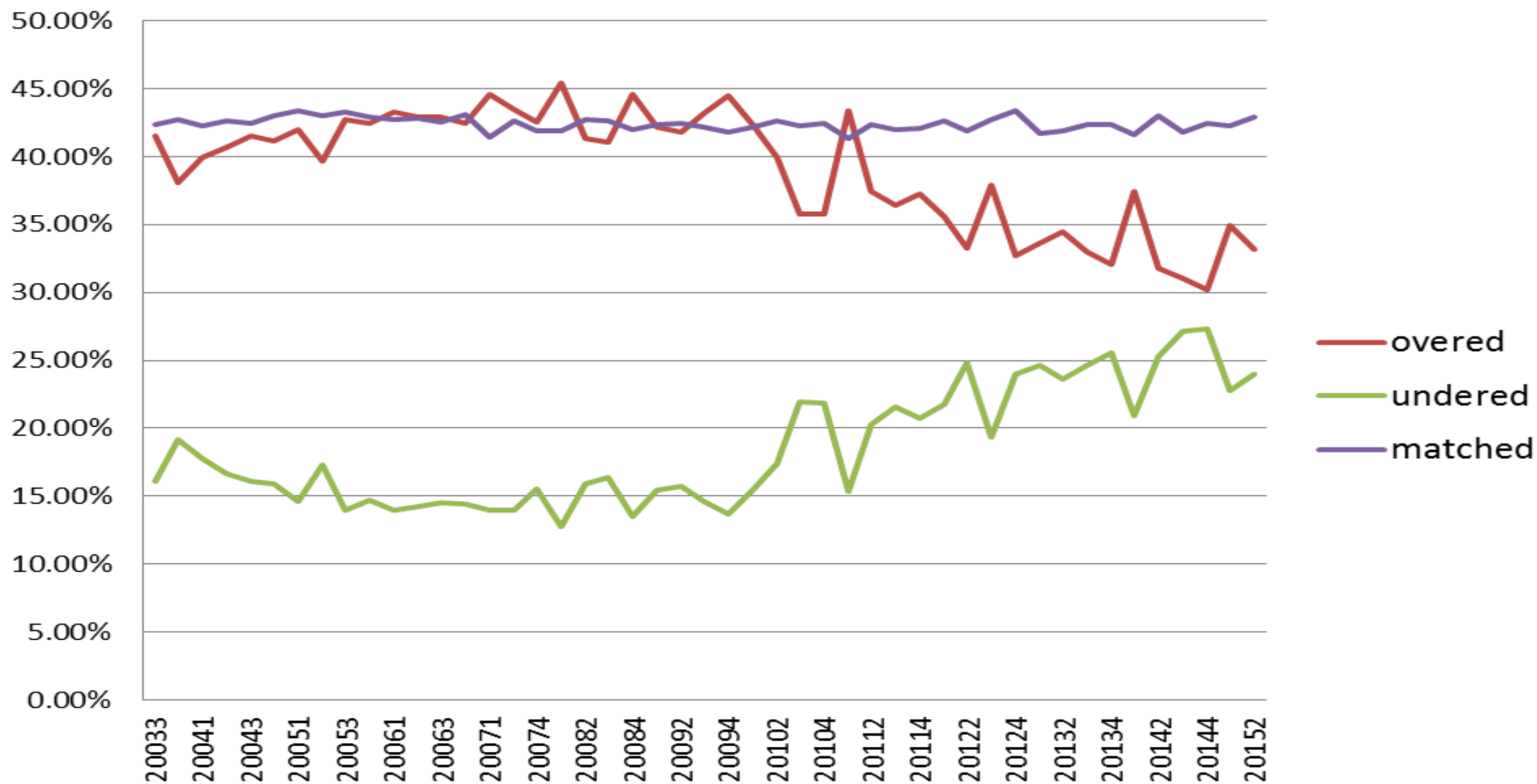
Undereducation (%): 2012 or nearest year



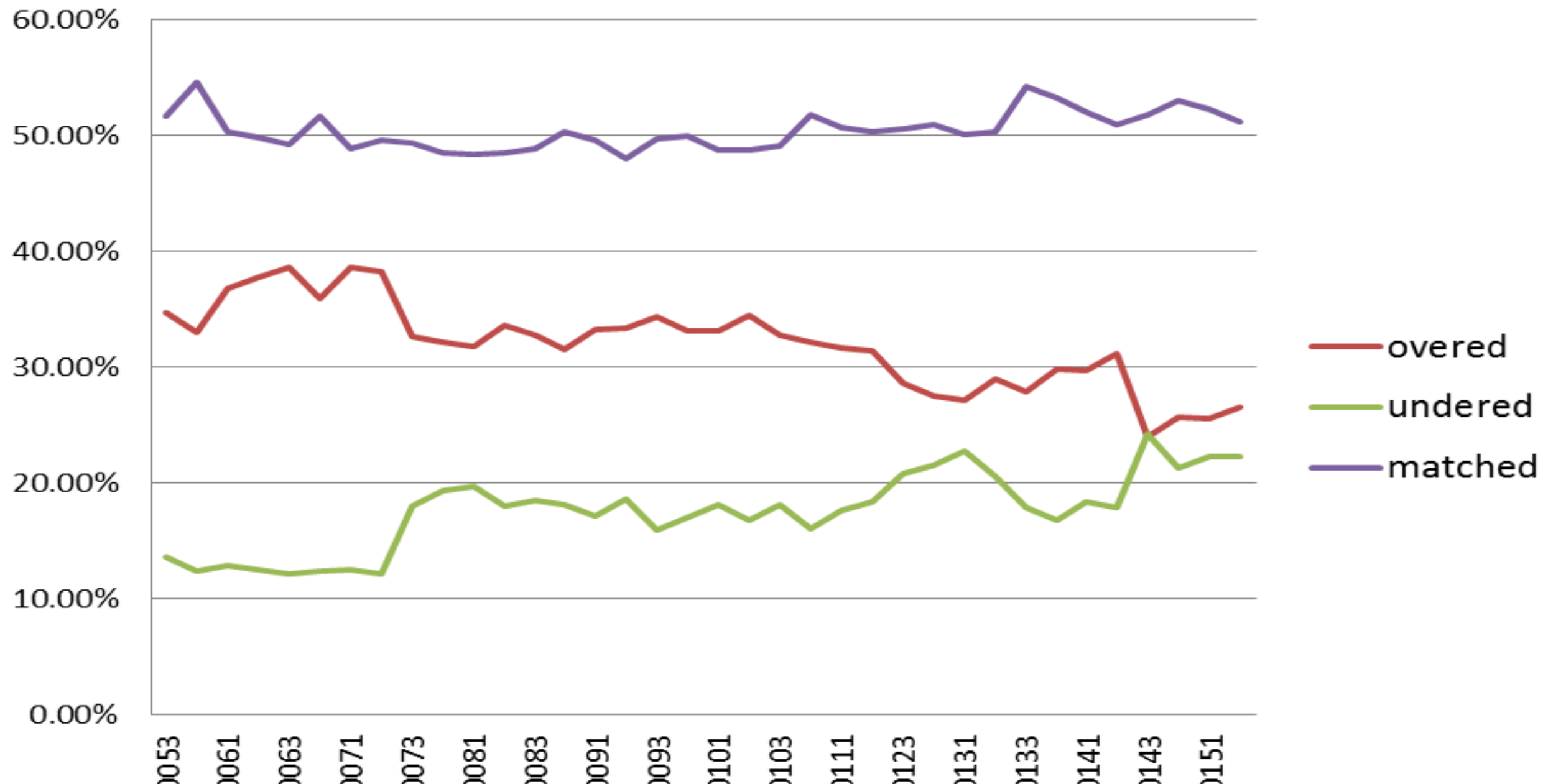
Philippines



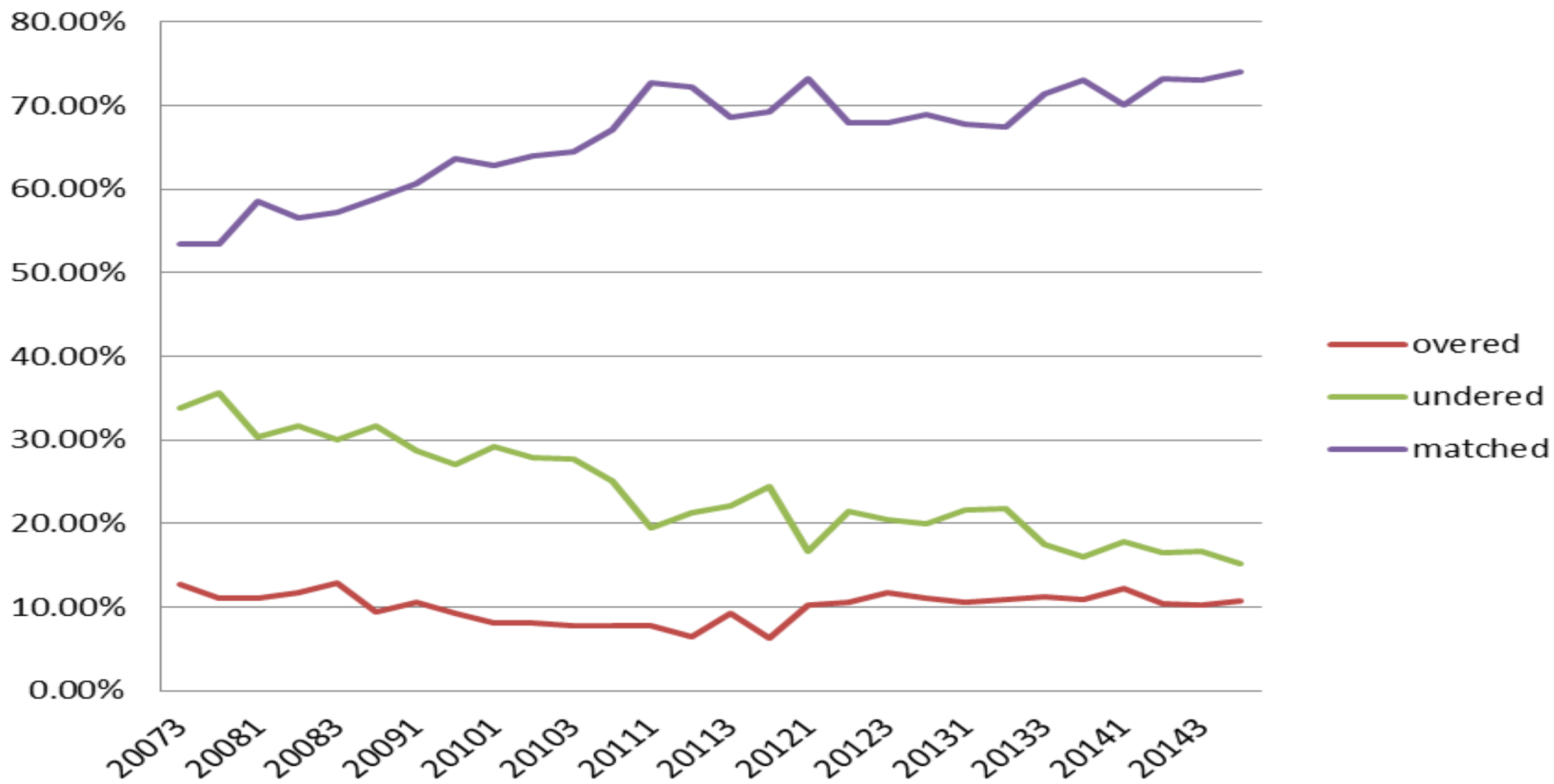
Argentina



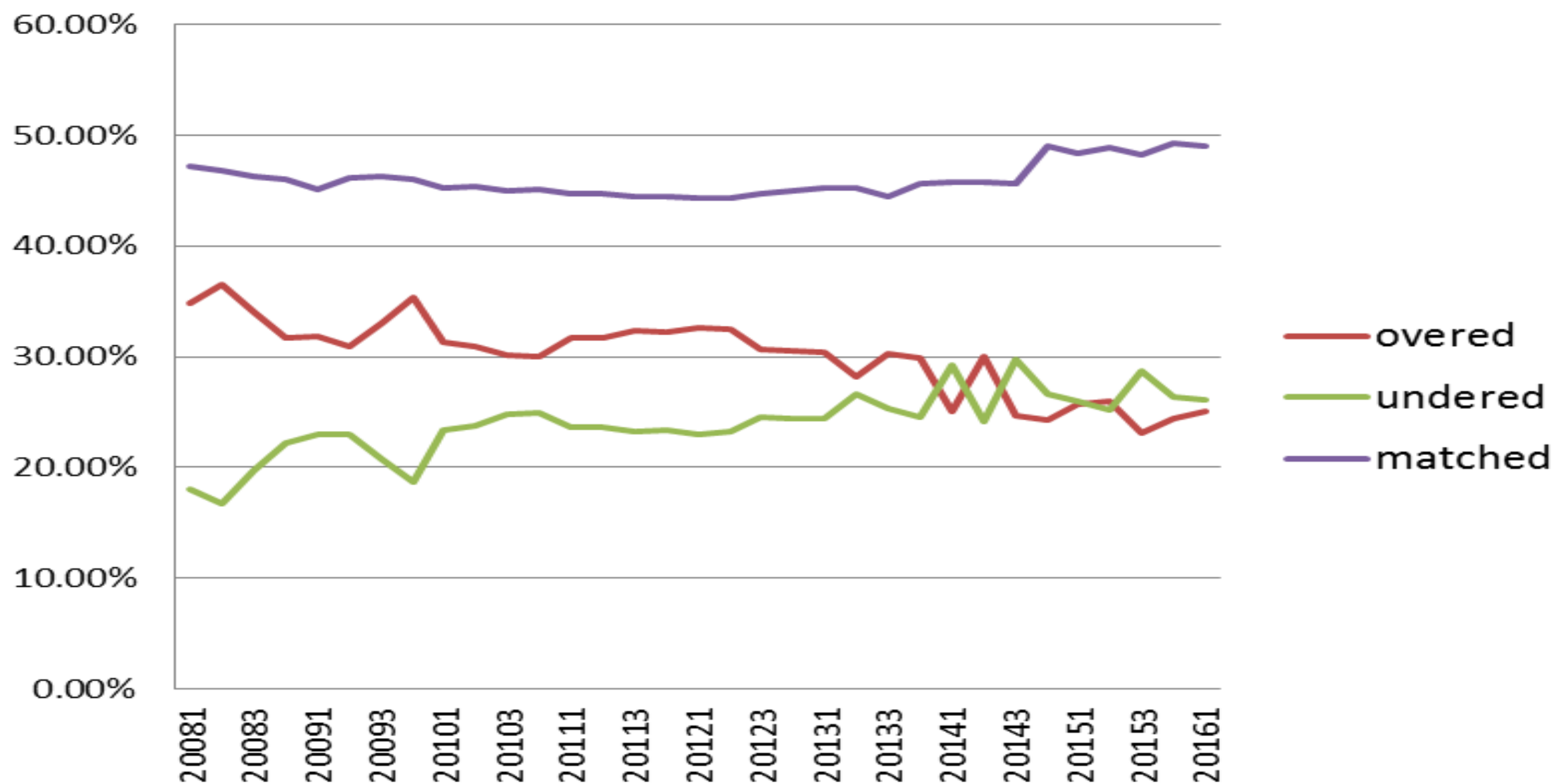
Pakistan



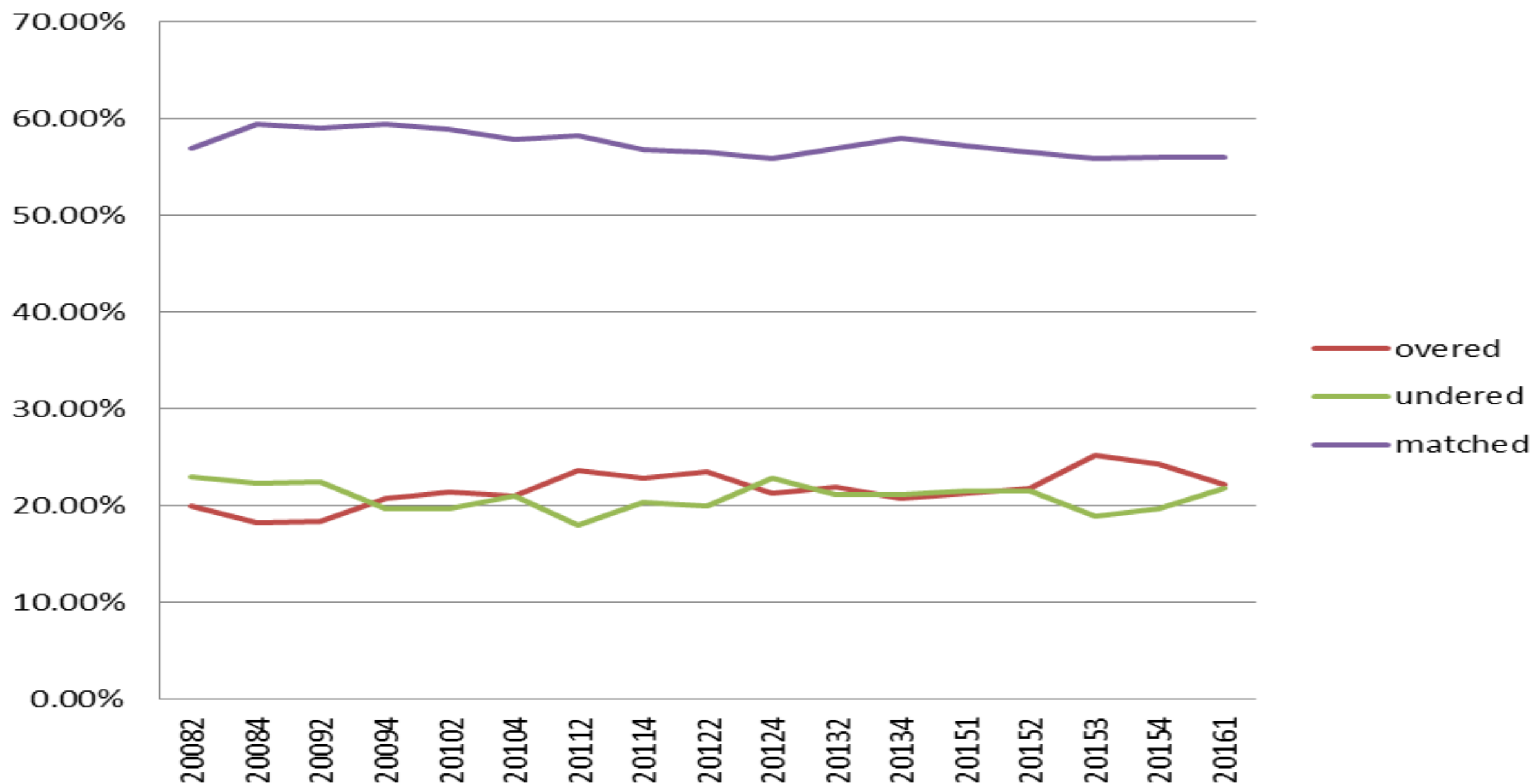
Mongolia



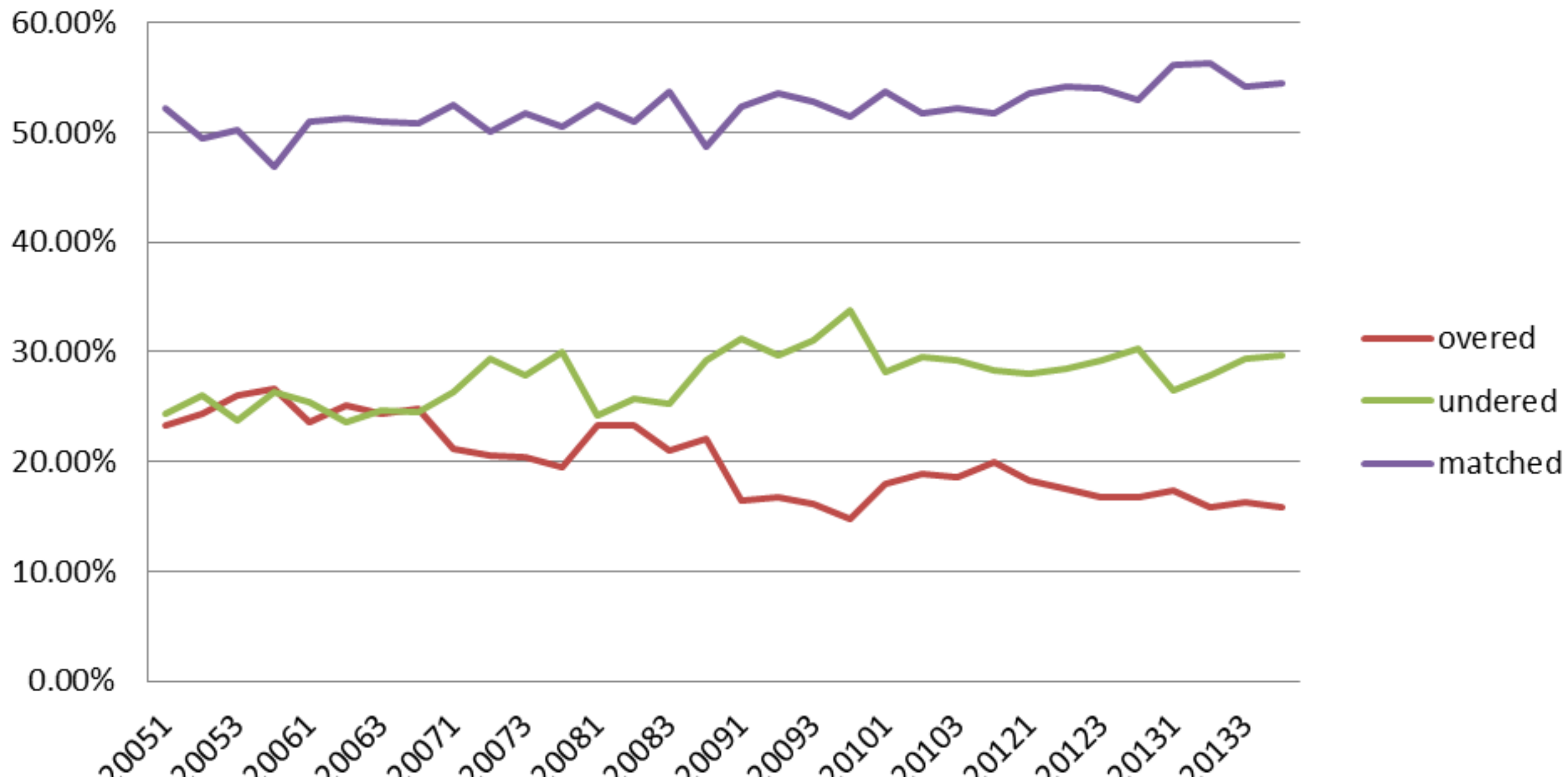
South Africa



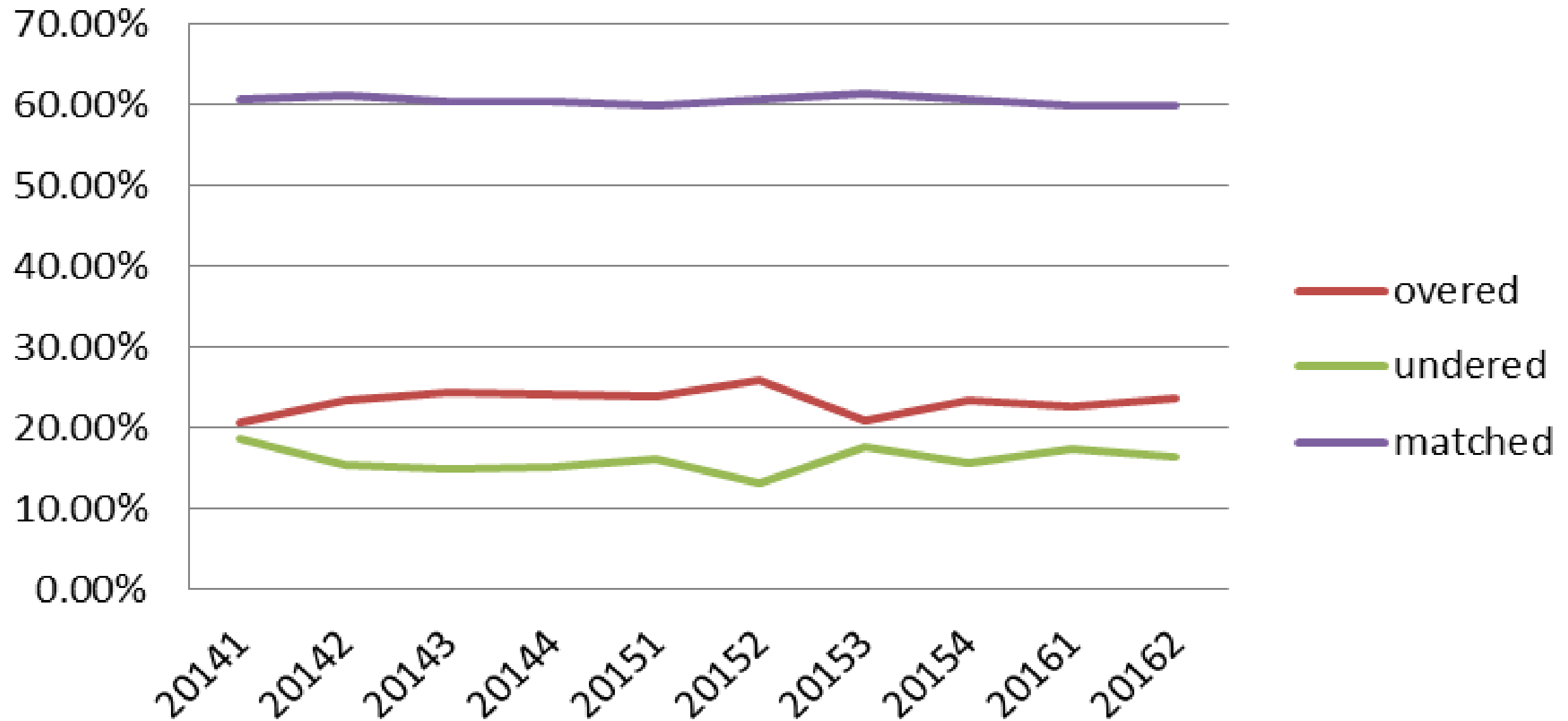
Serbia



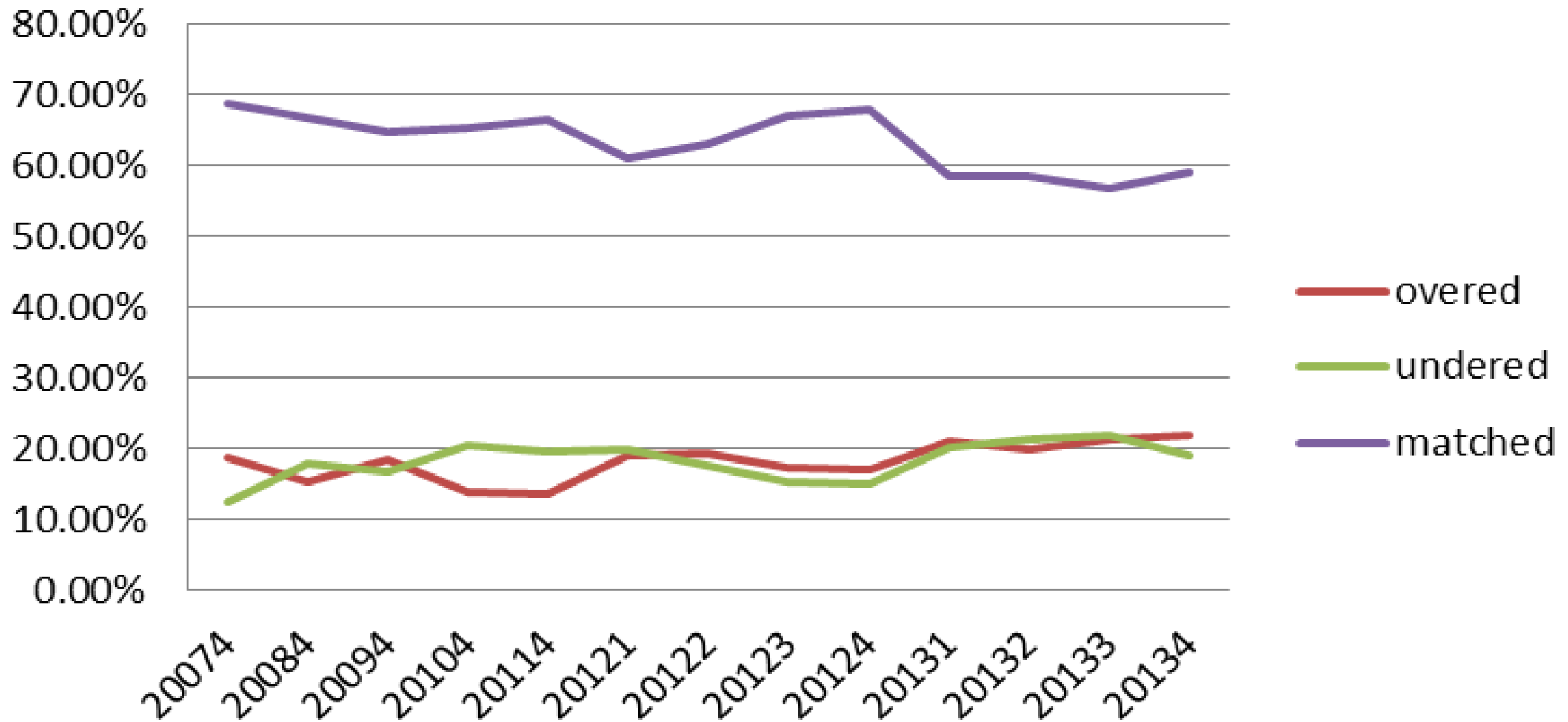
Peru



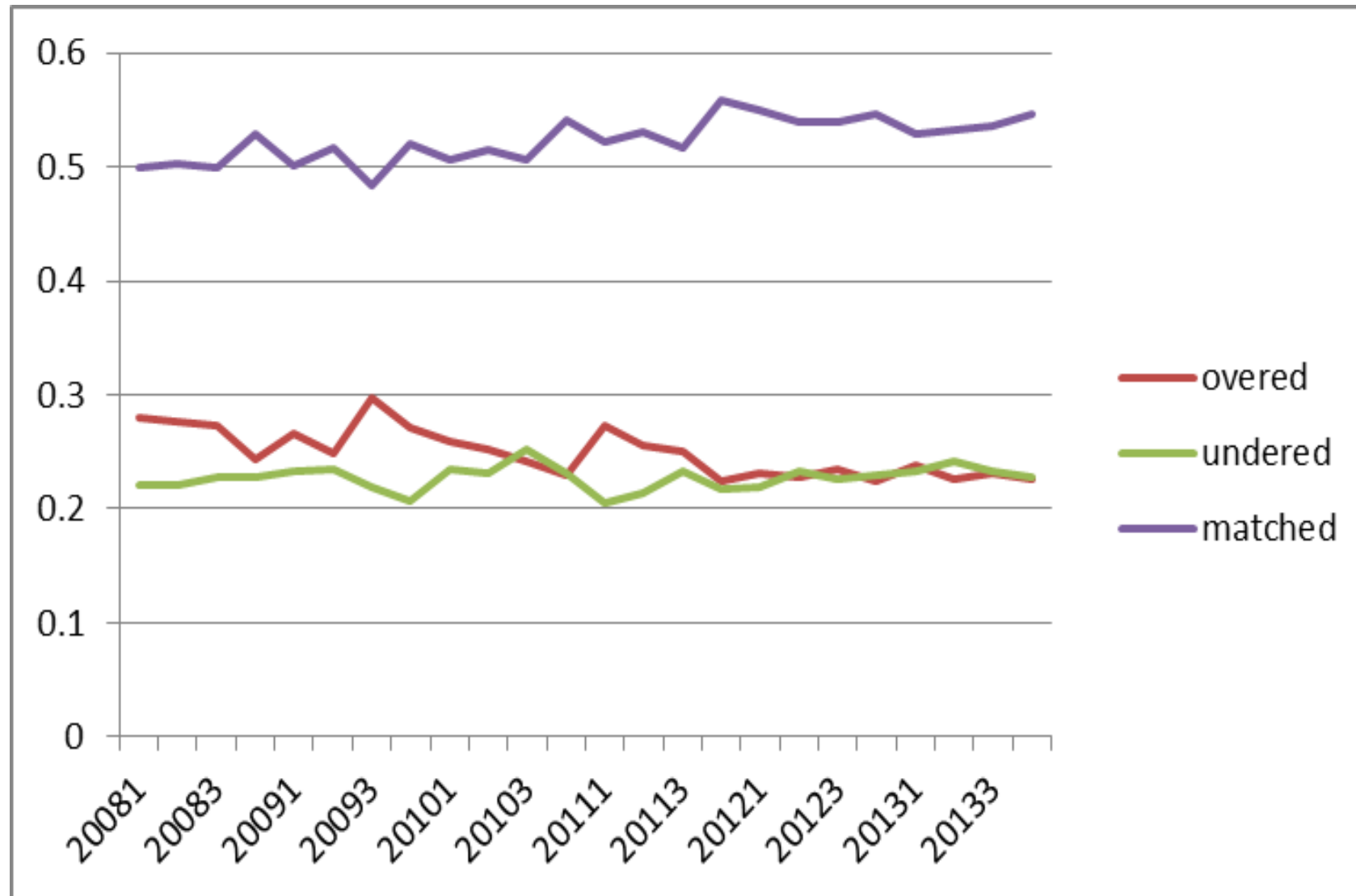
Ecuador



Albania



- Time series (2008-2013): Albania, Argentina, Mongolia, Pakistan, Peru, Philippines, Serbia, South Africa



$$\text{Overeducation}_{i,t} = \alpha + \beta \text{Undereducation}_{i,t} + \varepsilon_{i,t}$$

VARIABLES	overed
undereducation	-1.05*** (0.142)
Constant	0.486*** (0.033)
Observations	156
R-squared	0.261

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: Educational mismatch statistics are extracted from Quarterly Labour Force Surveys from 2008-2013 and are based on full-time employees for the following countries; Albania, Argentina, Mongolia, Pakistan, Peru, Philippines, Serbia and South Africa.

$$Matched_{i,t} = \alpha + \beta Overeducation_{i,t} + \varepsilon_{i,t}$$

VARIABLES	matched
overeducation	-0.751*** (0.034)
Constant	0.711*** (0.009)
Observations	156
R-squared	0.763

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: Educational mismatch statistics are extracted from Quarterly Labour Force Surveys from 2008-2013 and are based on full-time employees for the following countries; Albania, Argentina, Mongolia, Pakistan, Peru, Philippines, Serbia and South Africa.

$$\text{Undereducation}_{i,t} = \alpha + \beta \text{Overeducation}_{i,t} + \varepsilon_{i,t}$$

VARIABLES	undered
overeducation	-0.249*** (0.0337)
Constant	0.289*** (0.00896)
Observations	156
R-squared	0.261

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: Educational mismatch statistics are extracted from Quarterly Labour Force Surveys from 2008-2013 and are based on full-time employees for the following countries; Albania, Argentina, Mongolia, Pakistan, Peru, Philippines, Serbia and South Africa.

Summary of time trends

Country	Overeducation	Undereducation	Matched
Philippines	Decreasing	Increasing	Increasing
Argentina	Decreasing	Increasing	Stable
Pakistan	Decreasing	Increasing	Increasing
Mongolia	Stable	Decreasing	Increasing
South Africa	Decreasing	Increasing	Increasing
Serbia	Increasing	Stable	Decreasing
Peru	Decreasing	Increasing	Increasing
Ecuador	Stable	Stable	Stable
Albania	Increasing	Increasing	Decreasing
Vietnam	Increasing	Increasing	Decreasing

Wage effects

Developed countries

- Average overeducation wage penalty of 13.5 percent (McGuinness, Pouliakas and Redmond 2017).
- Mixed evidence on undereducation
 - Undereducation wage premium (Verhaest and Omey, 2006 & 2012)
 - No undereducation wage premium (Sánchez-Sánchez and McGuinness, 2015; Di Pietro and Urwin, 2006)

Wage effects

Wage regression

$$Wage_{i,j} = \alpha + \beta_1 Male_{i,j} + \beta_2 Education_{i,j} + \beta_3 Sector_{i,j} \\ + \beta_4 Overed_{i,j} + \beta_5 Undered_{i,j} + \beta_6 Matched_{i,j} + \varepsilon_{i,j}$$

	BGD	GMB	LBR	KHM	UGA	NAM
VARIABLES	Inwage	Inwage	Inwage	Inwage	Inwage	Inwage
overed	-0.247*** (0.00911)	-0.323*** (0.106)	-0.102 (0.111)	-0.0290 (0.0409)	-0.404*** (0.114)	-0.598*** (0.0335)
undered	0.255*** (0.0101)	0.315** (0.133)	0.169 (0.121)	0.208*** (0.0447)	-0.128 (0.130)	0.579*** (0.0359)
Constant	3.558*** (0.0210)	1.281*** (0.298)	-1.870*** (0.413)	6.805*** (0.0527)	4.040*** (0.216)	-0.517*** (0.127)
Observations	24,015	707	1,092	7,890	1,417	6,555
R-squared	0.254	0.119	0.064	0.084	0.319	0.508

Note: Sample consists of full-time employees. Data comes from Labour Force Surveys for the following countries and years; Bangladesh (2013), Gambia (2012), Liberia (2010), Cambodia (2012), Uganda (2012), Namibia (2014).

Conclusions 1

- Data problems create real barriers to assess the issue of skills and educational mismatch in low and middle income countries.
- The research here suggests that the incidence of overeducation is on average higher in middle income countries relative to high income countries.
- While overeducation tends to be stable over time in high income countries, it appears to have a slight downward trend in many middle income countries.
- The rate of matched employment is increasing only slowly over time as declines in overeducation are being somewhat offset by increases in undereducation

Conclusions 2

- A potential explanation for the observed trends may be increased job quality arising from development and technical progress. As job quality and entry requirement rise, overeducation will tend to fall while undereducation (particularly among older existing workers) will tend to rise.
- The limited evidence suggests that the wage effects of educational mismatch in low and middle income countries are similar to those seen in high income countries.
- However, based on our limited evidence, the pay penalty associated with overeducation appears much more severe in low and middle income countries relative to high income countries