



הלשכה המרכזית לסטטיסטיקה  
Central Bureau of Statistics  
دائرة الإحصاء المركزية

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# Challenges in Estimating Irregular Migration in Israel since 1995

Israel Central Bureau of Statistics

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*It's All in the Numbers*

# Background

- The **Border Control File** is a major resource used by the Ministry of Interior (and later by **Administration of Border Crossings, Population and Immigration**) for registration of foreign workers and other types of foreigners. Since its inception, the **BCF** has been a major statistical resource for the ICBS.

# Data for Estimations


- Annual Entrants: all foreign citizens who entered Israel from January 1 to December 31
- Annual Stock : all foreign citizens who entered Israel from 1/1/1990 for whom no exit was recorded up to 31/12/XXXX
  - ❖ Illegal stayer
  - ❖ a failure in linking the entry record to the exit record.
  - ❖ the person could have naturalized.

# Calculation of Illegal Workers Estimates (tourist visa overstayers)

- Method 1995-1999, based on system error (*Robert Warren*)
- Method for 2000-2009, based on "balance per country" (*Laura Staetsky*)
- Method for 2010-2014, based on adjusted "balance per country"
- Survival-based method 2015

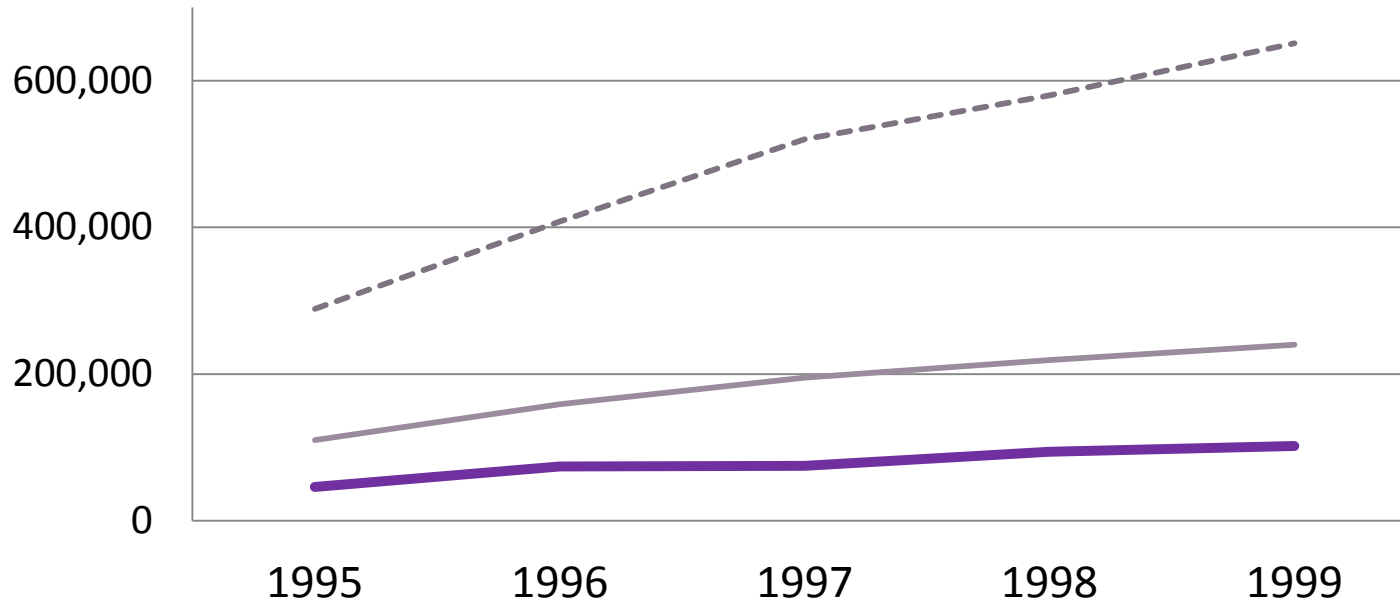
# Method 1995-1999, based on system error

$$P_{i,t} = OS_{i,t}^{1-9} - IN_{i,t}^{1-9} * M\%_{i,t} - F_{i,t}^{1-9}$$

- $OS_{i,t}^{1-9}$  - OverStayers, by citizenship in year t, (Jan.–Sept.)
  - $IN_{i,t}^{1-9}$  - Entrances in year t, by citizenship (Jan.–Sept.)
  - $M\%_{i,t}$  - System error in year t, by citizenship
  - $F_{i,t}^{1-9}$ —Tourists who changed their status to immigrants, by citizenship in year t, (Jan.–Sept.)
- 

# Method 1995-1999, based on system error

## Estimation OverStayers 1995-1999



Year	Estimation
1995	46,000
1996	74,000
1997	75,000
1998	94,000
1999	102,000

- apparrent overstayers
- estimated overstayers
- estimated overstayers from developing countries

# Changes in Data Source

- Since 2000, data on foreigners crossing the border have been obtained by the ICBS from Police Files
- The data in these Police Files do not distinguish between the different types of visas of those entering and exiting the border.

# Method for 2000-2014, based on "balance per country"

$$P_{i,t} = P_{i,t-1} + IN_{i,t}^{1-9} - OUT_{i,t}^{1-9} +$$

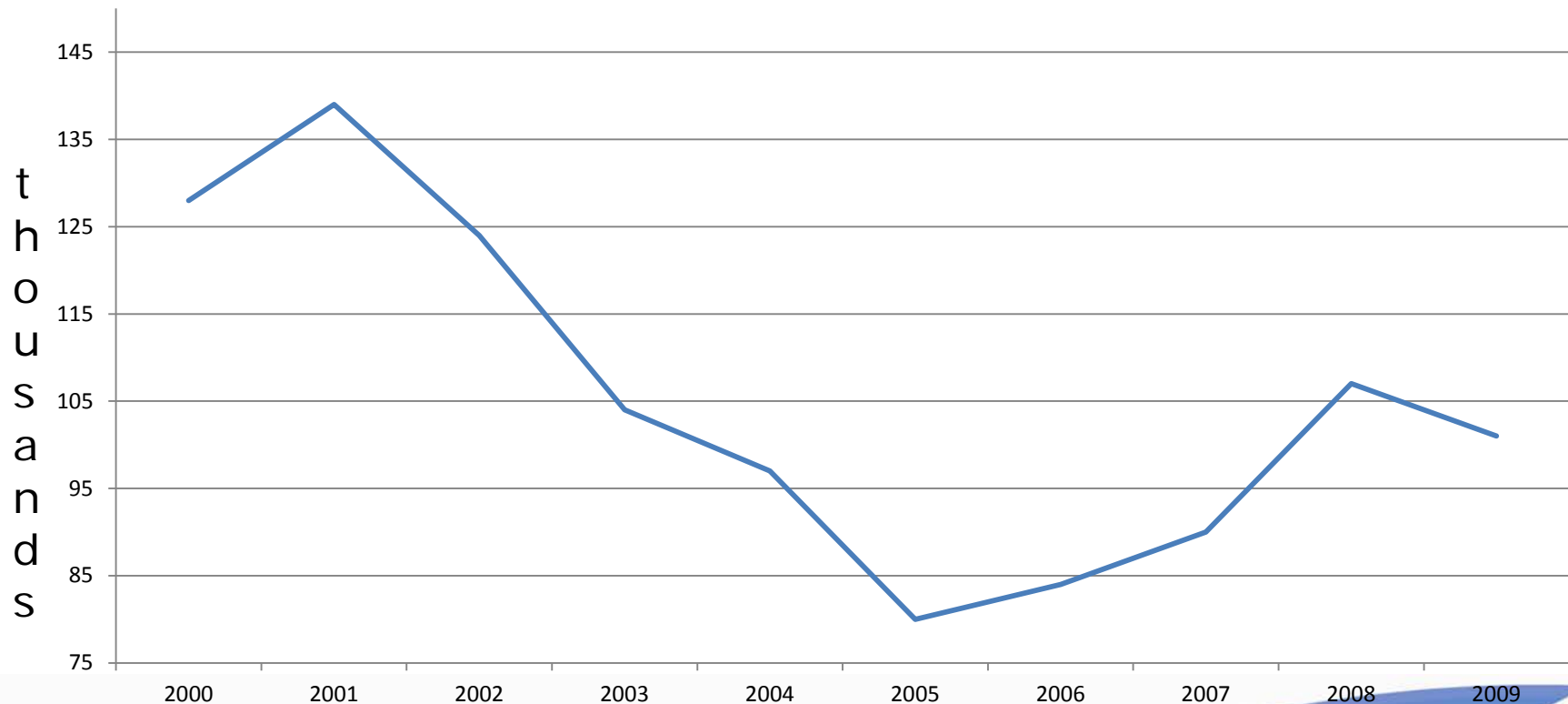
$$NB_{i,t}^{10-12} + PB_{i,t-1}^{10-12} - F_{i,t}$$

- $IN_{i,t}^{1-9}$  —Entrances in year t, by citizenship (Jan.–Sept.)
- $OUT_{i,t}^{1-9}$  —Exits in year t, by citizenship (Jan.–Sept.)
- $NB_{i,t}^{10-12}$  —Negative balance of months Oct.–Dec. in year t, by citizenship
- $PB_{i,t-1}^{10-12}$  —Positive balance of months Oct.–Dec. in year t – 1, by citizenship
- $F_{i,t}$  —Estimates of foreign workers with work visas, immigrants, tourists who changed their status to immigrants, by citizenship in year t.



# Method for 2000-2009, based on "balance per country"

## Estimation OverStayers 2000-2009

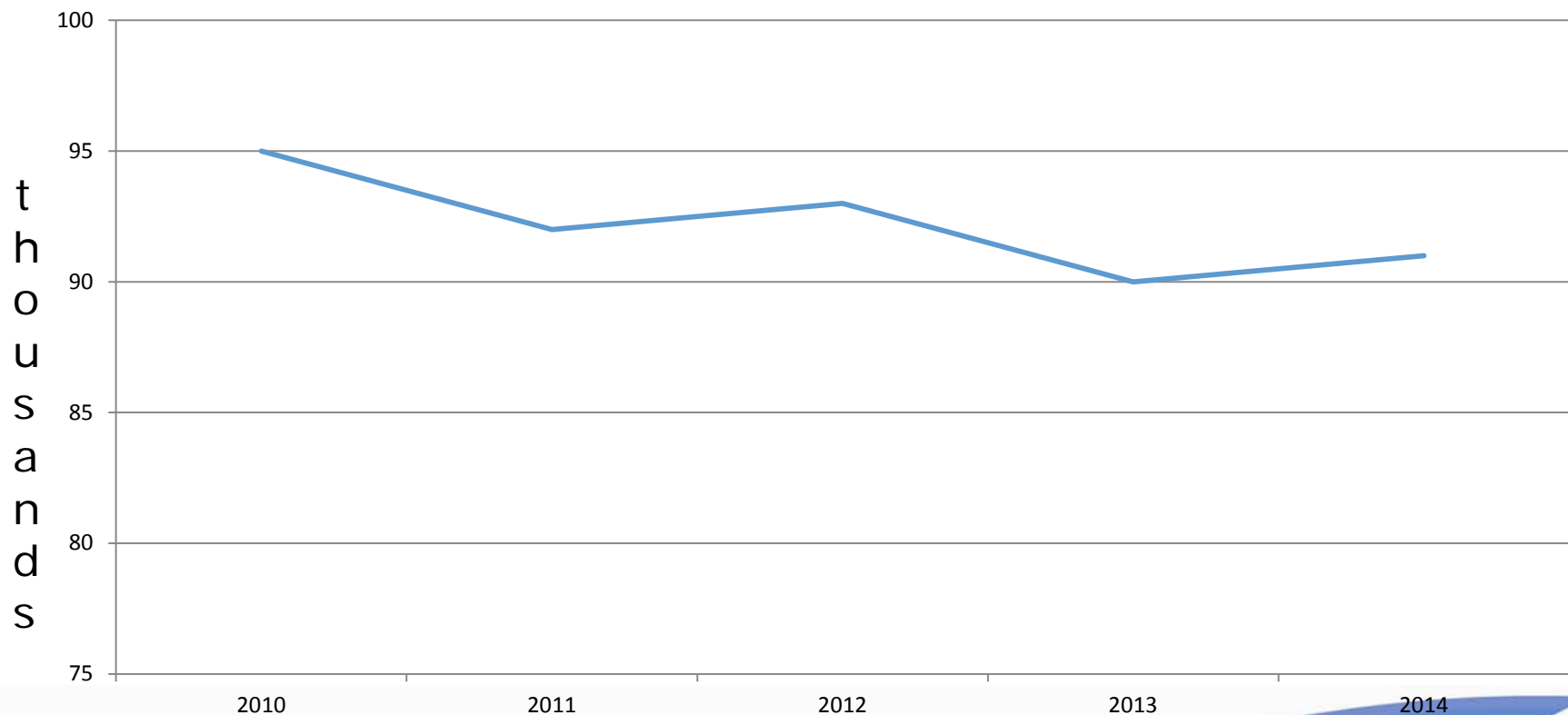


# Method for 2010-2014, based on "balance per country"



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Estimation OverStayers 2010-2014 (adjusted)



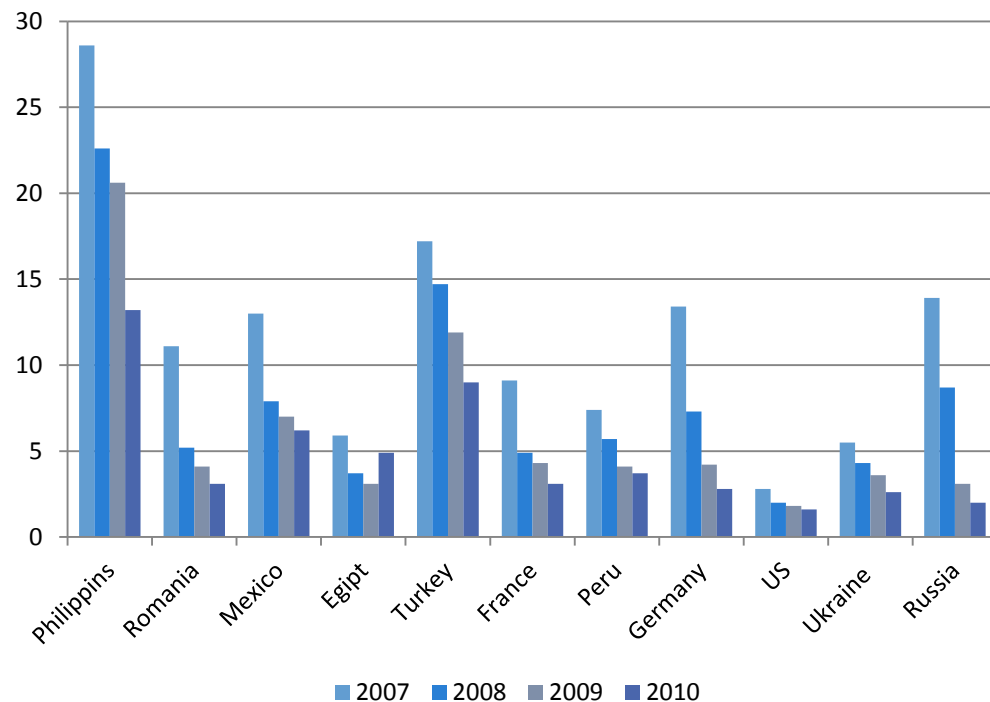
# Recent experiments with new data sources

- File of deported foreigners, 2015
- Linking the Population Register with the stock of foreigners apparently in Israel from 1995– 2014
- Analysis of the "Reverse Stock" file



# Percent of non-registered departures of foreigners

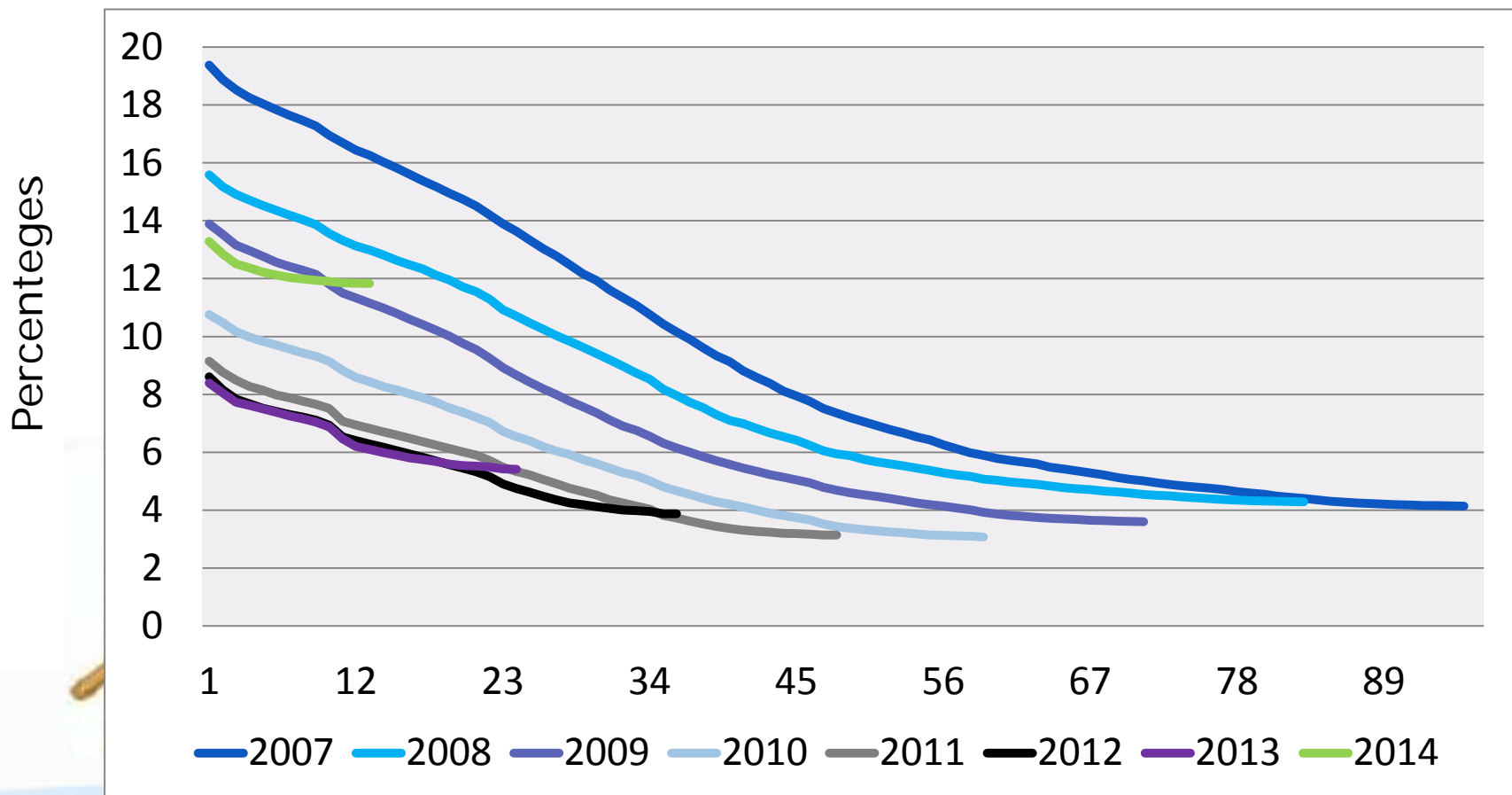
	2007	2008	2009	2010
Philippines	28.6	22.6	20.6	13.2
Romania	11.1	5.2	4.1	3.1
Mexico	13.0	7.9	7.0	6.2
Egypt	5.9	3.7	3.1	4.9
Turkey	17.2	14.7	11.9	9.0
France	9.1	4.9	4.3	3.1
Peru	7.4	5.7	4.1	3.7
Germany	13.4	7.3	4.2	2.8
USA	2.8	2.0	1.8	1.6
Ukraine	5.5	4.3	3.6	2.6
Russia	13.9	8.7	3.1	2.0
China	67.7	49.4	28.6	21.3
Thailand	409.4	172.5	122.3	97.1
Nepal	896.8	316.0	196.4	42.6



# Experience in updating methodology – Survival-based method

- Assumption: as long as exits of tourists who entered in early years are recorded, there is proof that there exists a population who survives in Israel over several years.
- Conclusion:
  - $\approx 80\text{--}90\%$  of persons from *developed countries* leave within a month, within a year,  $\approx 0.5\text{--}2\%$  of the visitors remain.
  - $\approx 60\%$  of persons from *developing countries* leave within a month, within a year,  $\approx 3\text{--}5\%$  of the visitors remain.

# Experience in updating methodology – Survival-based method



# Estimation of Overstayers from Philippines at 2014

year	Entrants	Stayers	% stayers
2007	45,390	1,616	3.6
2008	50,894	1,901	3.7
2009	52,345	1,731	3.3
2010	72,960	2,149	3.0
2011	82,272	2,528	3.1
2012	83,548	3,215	3.9
2013	84,042	4,547	5.4
2014	60,585	7,166	11.8
Total	532,036	24,893	4.7

	2014
Apparent overstayers	24,893
Workers	16,246
Family formation	3
Status changes	1,448
Estimated overstayers	7,196

# Future research

- Building the survival curve from the New system ("Rotem") data 2009-2015
- Building a database (Stock of foreigners) at the individual level for all of the entries and exits from the "Rotem" system data 2009-2015



# Thank You

# the Distribution of Selected Countries with the highest representation

	Thousands	Percents
<i>USA</i>	28.0	19.6
<i>Russia</i>	17.5	12.2
<i>Ukraine</i>	17.0	12.0
<i>France</i>	12.2	8.5
<i>Argentina</i>	7.2	5.1
<i>Israel</i>	7.0	4.9
<i>UK</i>	5.7	4.0
<i>Uzbekistan</i>	3.2	2.3
<i>Canada</i>	3.0	2.1
<i>Belarus</i>	2.7	1.9
<i>Georgia</i>	2.4	1.7
<i>Romania</i>	2.2	1.5
<i>S. Africa</i>	2.0	1.4
<i>Philippines</i>	1.4	1.0
<i>Others</i>	31.4	21.8
<b>Total</b>	<b>142.9</b>	<b>100.0</b>

