Lottery Sales and Per-capita GDP: An Inverted U Relationship

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Authors' contributions

This work was carried out as a collaborative effort among both the authors. MJK designed the study, performed the statistical analysis, wrote the protocol, and wrote the first draft of the manuscript. HCF managed the analyses of the study and managed the literature searches. All authors read and approved the final manuscript.

Research Article

ABSTRACT

The main purpose of this study is to test the hypothesis that the relationship between per-capita sales and per-capita GDP is given by an inverted U. The paper considers that lottery sales increase together with increases in GDP up to a point where a country has reached a level at which the GDP is high enough and lottery sales become an inferior good and as a result, start to decrease. The results confirm the hypothesis, in addition to yielding other interesting findings: countries with higher levels of education sell fewer lottery products; lottery sales increase together with increases in the male to female ratio.

1. INTRODUCTION

People are found to play lottery games in more than half of the world's countries. As Ariyabuddhiphongs (2011) wrote: "Lotteries have been a part of human history since its beginning. Different forms of lottery gambling were recorded in the Old Testament; Roman

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emperors offered them for entertainment; French kings used them to balance state deficits; and modern states rely on lotteries to finance an important part of their public works". Rasiah (2010) suggests that during the Han Dynasty the lottery help the China in many government projects as The Great Wall of China.

When taking account of the likelihood of winning a lottery jackpot, given the odds against such an event, we have a sense of the irrationality of buying a lottery ticket for purposes of enrichment or investment. This begs the question, why do people buy lottery products? Are they motivated by the desire to become wealthy? Do low-income earners participate with a stronger desire to win? To answer this question, the paper tests the hypothesis that per-capita sales increase simultaneously with increases in per-capita GDP up to a point and then start to decrease. As there are other determinants of the expenditure on lottery products, the paper introduces into the regression analysis other explanatory factors as control variables. Age and gender distribution and religion are some of the relevant factors examined.

The main purpose of this paper is to study the existing relationship between per capita GDP and per capita lottery sales while controlling for other explanatory factors. Additionally, the paper aims to test the hypothesis that an increase in a country's wealth leads to additional gambling, until a certain limit. The underlying idea is that lottery products may, at a certain point, be considered as an inferior good.

Using 2005 data from 80 countries, and an adequate econometric technique, the hypothesis of an inverted-U relationship between per capita lottery sales and per capita GDP is confirmed in two different econometric specifications, justifying the hypothesis in analysis.

The paper is organized as follows. In the next section, the literature is reviewed. The third section presents the formal hypotheses and the econometric model. The fourth section explains the empirical findings. The final section considers the study's implications and presents the concluding remarks. In the annexes different estimations using logs for the dependent variable, the correlation matrix and descriptive statistics where included.

2. REVIEW OF THE THEORETICAL LITERATURE AND EMPIRICAL STUDIES

Lotteries possess unusual and unique attributes that make the phenomenon attractive to researchers. Lottery participation is a combination of an investment, as stated by Selinger (1993) and entertainment according to Wagman (1986). This combination accounts for the fact that lotteries play a significant part in the lives of consumers nowadays (Miyazaki et al., 1999).

Lotteries are the only risk-laden products sponsored and marketed by government agencies for government gain. The rapid growth of this type of consumer product in the United States gave rise to disputes with regard to government-sponsored gambling and the rules and policy that should be imposed at state level (Clotfelter and Cook, 1989).

Lottery games involve the concept of randomness, which simply suggests that the outcome of an event is unknown prior to the actual occurrence of the event (Draper and Lawrence, 1970). If consumers hold a mistaken belief about the random nature of lotteries, i.e., that they are in control of the outcomes of random events, such a misconception will tend to influence the decision to play lottery games.

The fact that little research had been conducted into the purchasing behavior underlying the growing consumption of government-sponsored lotteries inspired Miyazaki et al. (1999) to explore people's purchase and non-purchase motivations in respect of lotteries. The study attempted to investigate the motives both for playing and for not playing lottery games.

Previous studies have sought to find a possible correlation between lottery purchasing behavior and demographic characteristics, such as age, gender, race, income and educational attainment, but with little consensus achieved among researchers. The study of Clotfelter and Cook (1989) suggested that lottery players who have relatively low incomes are motivated by the prospect of wealth, while those who have higher incomes play for entertainment; hence, low income-earners participate with a stronger desire to win.

Croups et al. (1998) found that in the UK, lottery play is negatively correlated with education level and that misunderstanding of lottery probability and lottery play are positively correlated. Layton and Worthington (1999) examined the socio-economic determinants of gambling expenditure on lotteries, Lotto and Instant Lotto, TAB/on-course betting, poker machines and casino-type games in Australia. Using a sample of Australian households in 1993-1994, they found that ethnicity, income sources and income level influence the probability of a household's gambling. Chalmers and Willoughby (2006) examine gender-specific factors which are related to adolescent gambling behavior. Gender-role socialization may influence the interest and participation in gambling activities. Moreover, males are socialized to be risk-takers. Gambling allows the young males to test their courage and demonstrate greater status. This can explain why the empirical studies have confirmed that males gamble more than the females. Recent studies have found empirical evidence of the impact of gender, education level, race and economic status on lottery burden (Daberkow and Lin, 2012).

Some authors studied the influence of religiosity on gambling participation and concluded that religious faith did not seem to have a significant impact on gambling (see, Lam 2006). However, the results of Kumar (2009) and Kumar et al. (2011) suggest that the propensity to gambling is stronger in regions with higher concentrations of Catholics relative to Protestants.

The regressivity of lottery games, measured by income elasticity coefficients, has also deserved the attention of many researchers (see, e.g. Price and Novak, 1999; Oster, 2004; Combs et al., 2008; Garret and Coughlin, 2009).

3. HYPOTHESES, DATA AND MODEL

3.1 Hypotheses

To analyze the issues raised by the authors and see if they apply to worldwide lottery consumption we defined the following hypotheses:

3.1.1 The relation between per-capita sales and per-capita GDP is an inverted U

We expect that per-capita lottery sales increase together with increases in GDP up to a point where a country has reached a level at which the GDP is high enough and lottery sales (or expenses on the part of consumers) become an inferior good and as a result, start to decrease. In order to analyze this relation and to discover what that GDP maximum level

might be, we included the variable (PCGDP)[2]. The paper uses per-capita GDP in purchasing power parity terms in US dollars (PCGDP). This hypothesis is based on microeconomic theory for inferior goods and on the assumption that lottery games are regressive (see, Price and Novak, 1999).

3.1.2 The higher the level of education, the smaller will be the per-capita lottery sales

The studies of scholars such as Croups et al. (1998), Ghent and Grant (2006) and Giacopassi et al. (2006) have revealed the existence of an inverse relationship between education and lottery consumption. By including the variable, Education (EI), an attempt is made to infer the influence of education in the demand for lottery products. We assume that the higher a country's level of education is, the less misinformed consumers are, the better they understand the odds of winning a prize and so, the less will they gamble. Therefore, we expect a negative relation between the education index and lottery sales.

3.1.3 There is a negative correlation between per-capita sales of lottery and young players aged between 15 and 29

According to Clotfelter and Cook (1989), the pattern of lottery participation by age is an inverted U, with the broad middle range (25-64) playing more than the young (18-24) and the old (65 and above). Therefore, those who play the least are the young and so, a country with a high percentage of young people will have smaller lottery sales. Given that, we anticipate a negative relation between per-capita sales of lottery and young players.

3.1.4 The higher the male to female ratio, the higher the per-capita lottery sales

Lottery studies have revealed that males play more than females (Clotfelter and Cook, 1989). There are some factors that intensify gambling behavior in men. Men are more likely to be less risk-averse, in addition to being more susceptible to over-confidence (Barber and Odean, 2001). We expect men to spend more money on lotteries than women. Consequently, we expect a positive relationship between the gender ratio and lottery sales.

3.1.5 The higher the percentage of Christians, the higher the per-capita lottery sales

Roberts et al. (1959) ascertain a relation between gambling and religion, pointing out the existence of a common interest in establishing a contact with the unknown, the human capacity to have faith and the hope of achieving success with the help of a divine power. We expect that Christians play more than other religious groups. Thus, there will be a positive relationship between the percentage of Christians in a country and lottery sales. Following Kumar et al. (2011), we also considered the distinction between Catholics, Protestants and Orthodox Christians, but these variables, mainly due to the lack of observations, were not statistically significant (see Annex 2).

3.1.6 Latin countries spend more money on lottery products than others

Another feature studied by various authors is the link between race, ethnicity and gambling behavior. Clotfelter and Cook (1989) and Price and Novak (1999) defend that Hispanics are more likely to gamble than other ethnicities. The underlying assumption is the regressivity hypothesis: lottery products are purchased more than proportionately by the poor and minority populations, as Blacks and Hispanics. So, we expect that Latins buy more lottery products than other ethnicities. Therefore, there will be a positive relationship between per-

capita lottery sales (PCS) and Latin countries (LATIN). In order to analyze this, we include one dummy variable to obtain two categories of ethnicities: Latin = 1 if a country is Latin and 0 otherwise. Countries that are non-Latin form the base group.

3.1.7 African countries spend more money on lottery products than others

Kearney (2005) found that, in the USA, black respondents spend almost twice as much on lottery tickets as do white and Hispanic respondents. The empirical evidence shows that the more regressive the games are the more they are played by the poor and by the minorities. There are several studies concluding that blacks spend more than the others (see, e.g. Clotfelter and Cook, 1987; Price and Novak, 1999). We expect that Africans spend more money purchasing lottery products. Thus, we anticipate a positive relationship between lottery sales and African countries. Similarly to the procedure for Latin countries, we include one dummy variable in order to obtain two categories of ethnicities: African = 1 if a country is African and 0 otherwise. Countries that are not African form the base group.

3.2 Data Source

In order to compare lottery sales on a national basis around the world, we used data from La Fleur's 2005 World Lottery Almanac. This almanac provides worldwide information on lottery sales by game and by continent for Africa, Asia and the Middle East, Europe, Central America, South America and the Caribbean and North America. Our dependent variable consists of the total sales that aggregates the seven categories of games tracked in La Fleur's almanac, including lotto, numbers, keno, toto, draw, instant and others (e.g. bingo), converted to US currency. The explanatory variables were obtained from some world data bases. These include: World Bank data, which provided information on GDP and population; the US Census Bureau International Data Base, which yielded information on the age and gender distribution of a country's population; and the UN Human Development Report, which provided information concerning the educational levels of the countries considered.

3.3 General Econometric Model

In order to test the hypothesis we specified the following econometric model:

$$Yi = S_0 + S_1 Xi + vi$$

Where Yi stands for PCS15 (per-capita sales over 15 years), X is a vector of explanatory variables in normal values or in natural logs and i is a random disturbance assumed to be normal, independent and identically distributed (IID) with E (i) =0 and Var (i) = ^{2} > 0. It is assumed that the explanatory variables are exogenous. We decided to select the explanatory variables in accordance with theory and other empirical studies. In a further research with data for more years it is useful a dynamic panel data analysis to control for potential endogeneity problems (see, for example, Faustino and Leitão, 2007; Leitão et al., 2011). We do not consider the logs for explanatory variables because there were multicollinearity problems between LnPCGDP and Ln(PCGDP)^2.

3.3.1 Dependent variable

PCS15 consists of total per-capita lottery sales, age over 15. Source: La Fleur's 2005 World Lottery Almanac divided by mid-year 2004 population, with age over 15. We have also considered the variable LnPCS15, but the results did not improve (see Annex 2).

3.3.2 Explanatory variables

PCGDP was obtained by the division of 2004 gross domestic product (in purchasing power parity terms in US dollars) with the mid-year population. $PCGDP^2$ is the Square of 2004 per-capita gross domestic product. The variable EI is the 2004 Education Index. AGE consists of population with ages between 15 and 29 as a percentage of total population. The GenderRatio was obtained considering the division of total male population aged over 15 by total female population aged over 15. CHRISTIAN is the Percentage of Christian followers in a country's population and was obtained by considering it to be the sum of the percentage of Catholics, Protestants and Orthodox Christians in each country. The variable LATIN assumes 1 if a country is Latin and 0 otherwise and the variable AFRICAN assumes 1 if a country is in Africa and 0 otherwise.

4. RESULTS AND DISCUSSION

When we consider all explanatory variables the results show that only PCGDP and $(PCGDP)^2$ are statistically significant. So, we have considered different specifications providing the Ramsey Reset test in order to see if the model had no omitted variables.

In Table 1, we specified five models. In the first model (regression 1), we were particularly interested in testing the hypothesis of the existence of a possible relation between PCS15 and PCGDP that configures in an inverted U and therefore, besides per-capita GDP, we also included, as explanatory variable, the square of per-capita GDP (to find a maximum). In the other models, we test the same hypothesis, but introduce different control variables: In the second model, we consider Gender Ratio and African as control variables; In the third regression, the control variables used were Age, Gender Ratio and African; In the fourth regression, we use Education Index (EI), Gender Ratio and Christian as control variables; and finally, in the fifth regression, EI, Gender Ratio Latin are the variables used to control for other effects on per-capita sales. Table 1 displays the OLS estimation results. We will analyze these results, considering all regressions.

Regression 1 includes as explanatory variables the per-capita GDP and the square of per-capita GDP. The variable square of per-capita GDP was incorporated into the model in order to respond to Hypothesis 1, i.e., to find a maximum. Per-capita GDP is statistically significant at the 1% level. The results show that an increase of 1 USD in per-capita GDP will lead to an increase of 0.01434 USD in a country's per-capita lottery sales. The increase of a country's wealth (in absolute terms) leads to more gambling. The square of per-capita GDP is also statistically significant. As expected, lottery sales increase together with an increase in GDP up to a point and then start to decrease. The value of per-capita GDP at which per-capita lottery sales reach their maximum is 49,308.16 USD. The corresponding value of per-capita sales is 301.53 USD. This means that lottery sales increase together with increases in GDP until a country's per-capita GDP reaches 49,308.16 USD and from there starts to decrease.

These conclusions should be taken with caution because the Reset test shows that equation 1 is not a good specification.

In regression 2, we used the variables related to GDP (PCGDP and $PCGDP^2$), for the reasons mentioned above and two control variables: African, and Gender Ratio. All explanatory variables are statistically significant. The results show that the higher the country's percentage of male population relative to the female population, the higher the

lottery sales. It appears that men play more than women. The coefficient on the gender ratio is positive and significant, meaning that the increase of 1% in a country's male to female ratio implies an increase of per-capita lottery sales of 396.81 USD. This is a large impact that was not expected. When a panel data analysis is used this impact is positive, but smaller (see Kaizeler and Faustino, 2012). The coefficient of African countries is positive and significant. This positive effect is consistent with the results that we expected. African countries spend, on average, 36.74 USD more per capita than other countries.

In regression 3, we introduced AGE (the percentage of people aged between 15 and 29) as a new control variable, but it is not statistically significant at the 10% level. The other explanatory variables (PCGDP, PCGDP^2, Gender Ratio and African are significant with the expected coefficient sign.

In regression 4, we have chosen the Education Index (EI), Gender Ratio and Christian as the control variables. All explanatory variables are significant, except the variable Christian. Fewer lottery products are sold in countries with higher levels of education, which is as expected. The increase of 1% in the Education Index (EI) diminishes per-capita lottery sales by 216 USD. Consistent with the results obtained in regression 1, the coefficient on GenderRatio is positive and significant. The increase of 1% in a country's male to female ratio implies an increase in per-capita lottery sales of 309.32 USD. We can also conclude that Christians, on average, purchase more lottery products than the followers of other religions (having an additional 1% of Christians in a country implies an increase of about 65.38 USD in per-capita lottery sales). However, in this regression, this variable is not significant at 10%.

The results of this equation suggest that there is an inverted U relationship between per capita lottery sales and per capita GDP.

In regression 5, the control variables used are: the Education Index (EI), Gender Ratio and Latin. All explanatory variables have the expected coefficient sign and are significant, except the dummy variable Latin. However, the sign of Latin countries is also positive. The conclusion drawn from the value obtained is that, on average, Latin countries spend 20.52 USD more per-capita than other countries.

The results of this equation also suggest that there is an inverted U relationship between per capita lottery sales and per capita GDP

We have considered running a regression that included the explanatory variables found statistically significant in all models, but only PCGDP, PCGDP^2 and Gender Ratio showed statistically significant.

Table 1. Lottery demand estimates: Dep. variable: Per-Capita sales (15 years)

	1	2	3	4	5
Constant	**-52.53** [-3.85]	**-461.26** [-3.58]	**-374.58** [-2.79]	**-248.8** [-1.67]	**-293.89** [-1.75]
PCGDP	**0.01434** [5.39]***	**0.0165** [5.99]***	**0.0143** [4.88]	**0.0188** [6.83]***	**0.0183** [5.88]***
PCGDP^2	**-0.1452E-06** [-2.46]**	**-0.1759E-06** [-3.56822]***	**-0.1569E-06** [-3.48]***	**-0.2088E-06** [-5.71]***	**-0.197E-06** [-4.36]***
EI				**-216.08** [-5.26]***	**-138.06** [-2.18]**
AGE			**-579.43** [-1.60]		
GenderRatio		**396.81** [2.97]**	**479.2** [3.16]***	**309.32** [2.17]**	**324.4** [2.13]**
Christian				**65.38** [1.34]	
Latin					**20.52** [1.0]
African		**36.74** [1.69]*	**41.01** [1.95]**		
B.I.C.	**12.34**	**12.40**	**12.44**	**12.40**	**12.43**
RESET(p-values)	**0.021**	**0.156**	**0.130**	**0.149**	**0.1106**
N	80	80	80	80	80
Adjusted R^2	0.503	0.513	0.513	0.532	0.518

t-statistics (heterokedasticity corrected) are in parentheses.
*, **, ***, significantly at 10%, 5% and 1%, respectively. The table includes the p-values of the RESET specification test (under the null hypothesis, the model has no omitted variables and is a good specification), together with the Schwartz information criteria (B.I.C). When the numerical values of the dependent variable are identical, the model with the lower B.I.C. is preferred.

5. CONCLUSION

Some studies have argued that lotteries are regressive, since they are a means by which States can exploit the poor. However, our results reveal this to be only partially true. The increase of a country's wealth (in absolute terms) leads to more gambling, but there is a maximum. Per-capita lottery sales increase together with an increase in GDP per-capita up to a point, i.e., a maximum, and then start to decrease.

When considering the square of PCGDP, we have a quadratic function (parable) and the possibility to test this hypothesis. In this paper, a very interesting result was obtained: in all five regressions considered, lottery sales increase together with increases in GDP up to a point and then start to decrease. Thus, the results of the paper confirm the theoretical hypothesis: the relation between per-capita sales and per-capita GDP is an inverted U. However, the GDP per-capita at which lottery sales reach their maximum is different, depending on the explanatory variables used as control variables. In all the regressions the value of PCGDP that reaches the maximum per-capita sales is between 45.000 USD and 50.000 USD. Luxembourg is the only country were PCGDP is higher than 50.000 USD (see annexure 3) suggesting that this country is the only one that reached a certain income degree that allows the population to play for entertainment instead of playing for additional wealth.

Other interesting results emerge from our study: Countries with higher levels of education sell fewer lottery products - from a practical point of view, it appears that the higher the level of education, the more informed a country's population is in respect of the low probabilities of winning a prize and thus, the less is the consumption of this type of product; Countries in which the percentage of males is higher than that of females reveal higher lottery sales. The results also suggest that cultural and religious factors are not statistically significant in the explanation of the variation of lottery expenditure.

There are, however, some shortcomings that deserve further research. Since we used a small sample, data for more countries or more years would allow more supportive conclusions. A panel data analysis would also provide more reliable results. We could also consider some explanatory variables as endogenous, using additional instruments indicated by econometric literature.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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ANNEXURE 1. Descriptive Statistics and Correlation Matrix

Descriptive Statistics

	PCS15	PCGDP	PCGDP2	EI	AGE1	Genderratio	Christian	Latin	African
Mean	110.1461	15556.61	4.16E+08	0.831875	0.241075	0.954098	0.577350	0.300000	0.237500
Median	25.86239	11840.00	1.40E+08	0.910000	0.242000	0.958896	0.700000	0.000000	0.000000
Maximum	826.1123	69961.00	4.89E+09	0.990000	0.348000	1.061404	1.000000	1.000000	1.000000
Minimum	0.034636	224.0000	50176.00	0.230000	0.171000	0.810092	0.000000	0.000000	0.000000
Std. Dev.	154.0597	13274.26	6.64E+08	0.200310	0.041812	0.046331	0.356826	0.461149	0.428236
Skewness	1.983912	1.080918	4.094734	-1.629197	0.100780	-0.463274	-0.453340	0.872872	1.233694
Kurtosis	7.899226	4.722193	26.96448	4.561855	2.122677	4.325440	1.668800	1.761905	2.522002
Jarque-Bera	132.4868	25.46494	2137.879	43.52176	2.701074	8.717616	8.647201	15.26833	21.05496
Probability	0.000000	0.000003	0.000000	0.000000	0.259101	0.012794	0.013252	0.000484	0.000027
Sum	8811.692	1244529.	3.33E+10	66.55000	19.28600	76.32783	46.18800	24.00000	19.00000
Sum Sq. Dev.	1875016.	1.39E+10	3.48E+19	3.169819	0.138112	0.169577	10.05869	16.80000	14.48750
Observations	80	80	80	80	80	80	80	80	80

Correlation Matrix

	PCS15	PCGDP	EI	AGE1	Genderratio	Christian	Latin	African
PCS15	1.000000	0.667895	0.424871	-0.622049	0.009539	0.281147	-0.164742	-0.386558
PCGDP	0.667895	1.000000	0.622769	-0.803623	-0.116718	0.322148	-0.288205	-0.541911
EI	0.424871	0.622769	1.000000	-0.594253	-0.343202	0.527744	-0.219939	-0.849334
AGE1	-0.622049	-0.803623	-0.594253	1.000000	0.295845	-0.288651	0.183293	0.597779
GENDERRATIO	0.009539	-0.116718	-0.343202	0.295845	1.000000	-0.188477	-0.017621	0.240947
CHRISTIAN	0.281147	0.322148	0.527744	-0.288651	-0.188477	1.000000	0.191439	-0.399253
LATIN	-0.164742	-0.288205	-0.219939	0.183293	-0.017621	0.191439	1.000000	0.211525
AFRICAN	-0.386558	-0.541911	-0.849334	0.597779	0.240947	-0.399253	0.211525	1.000000

ANNEXURE 2. New estimations using LnPCS15 as dependent variable

Table 1. Lottery demand estimates: dep. variable: LnPer-capita sales (15 years)

	1	2	3	4
Constant	-7.02	-8.42	-9.74	-11.95
	[-2.09]	[-2.91]	[-3.01]	[-1.46]
PCGDP	0.00029	0.00027	0.0003	0.0005
	[9.16]***	[7.27]***	[8.90]***	[3.294]***
PCGDP^2	-3.31E-09	-3.07E-09	-3.36E-09	-8.07E-09
	[-6.16]***	[-5.61]***	[-6.06]***	[-2.775]**
EI	-1.282		0.945	-3.58
	(-0.89)		(0.907)	[-0.439]
AGE		-2.464		
		[-0.40]		
GenderRatio	8.65	9.77	9.243	12.57
	[2.91]***	[3.28]***	[3.025]***	[1.57]
Chatholic				0.76
				(1.57)
PROTESTANT				1.45
				(0.75)
ISLAM				6.22
				(0.683)
Latin			-0.51	
			(-0.17)	
African	-1.24	-0.865		
	[-2.19]**	[2.14]**		
B.I.C.	3.33	3.34	3.398	3.287
RESET(p-values)	0.0006	0.002	0.001	0.75
N	80	80	80	80
Adjusted R^2	0.79	0.78	0.777	0.846

Annexure 3. List of countries

Country	PCS15	PCGDP	Country	PCS15	PCGDP
Ghana	2.59	224	Mauritius	16.66	12,027
Ethiopia	0.20	756	Trinidad	160.91	12,182
Niger	2.05	779	Croatia	29.80	12,191
Madagascar	0.16	857	Poland	26.99	12,974
Congo	0.57	978	Lithuania	12.38	13,107
Mali	0.03	998	Argentina	57.82	13,298
Benin	1.42	1,091	Estonia	12.42	14,555
Kenya	0.44	1,140	Slovakia	22.57	14,623
Burkina Faso	3.17	1,169	Hungary	72.81	16,814
Mozambique	0.19	1,237	Malta	219.35	18,879
Togo	4.57	1,536	Czech Rep.	33.99	19,408
Cote d'Ivoire	6.74	1,551	Portugal	157.71	19,629
Senegal	5.36	1,713	Korea, Rep.	86.33	20,499
Moldova	0.28	1,729	Slovenia	19.43	20,939
Gambia	1.40	1,991	Greece	528.46	22,205
Zimbabwe	0.12	2,065	Cyprus	346.32	22,805
Bolivia	0.31	2,720	New Zealand	136.03	23,413
India	2.95	3,139	Israel	200.07	24,382
Morocco	7.08	4,309	Spain	450.16	25,047
Phillippine	3.17	4,614	Singapore	826.11	28,077
Peru	2.13	5,678	Italy	407.28	28,180
Lebanon	28.27	5,837	Germany	189.77	28,303
China	4.55	5,896	Japan	94.52	29,251
Ukraine	0.44	6,394	France	236.86	29,300
Algeria	0.55	6,603	Sweden	284.51	29,541
Macedonia	6.94	6,610	Finland	399.92	29,951
Panama	160.56	7,278	Australia	193.02	30,331
Kazakhstan	1.21	7,440	U.K.	184.56	30,821
Turkey	17.27	7,753	Hong Kong	138.86	30,822
Bulgaria	18.44	8,078	Belgium	257.46	31,096
Thailand	40.09	8,090	Canada	205.76	31,263
Brazil	5.45	8,195	Netherlands	97.44	31,789
Romania	11.56	8,480	Denmark	327.82	31,914
Uruguay	21.34	9,421	Austria	308.57	32,276
Costa Rica	47.72	9,481	Switzerland	225.81	33,040
Mexico	11.57	9,803	Iceland	210.13	33,051
Malaysia	87.57	10,276	Norway	432.64	38,454
Chile	18.81	10,874	Ireland	255.26	38,827
South Africa	24.73	11,192	United States	204.33	39,676
Latvia	3.57	11,653	Luxembourg	185.25	69,961