THE MATERIAL WELLBEING OF NEW ZEALAND HOUSEHOLDS

Motu Note #21
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SUMMARY

A new measure of material wellbeing based on actual household consumption rather than on their incomes, shows that New Zealand households have amongst the highest material living standards in the world. Using country averages for households that include a fifteen-year-old child, New Zealand had the third highest material living standards in the world in 2012. This follows fourth and second placings in 2000 and 2009, respectively.

New Zealand's degree of inequality in household material wellbeing, however, ranked twentieth of forty countries in 2012, with inequality levels similar to those in the USA, Canada and Great Britain. Australia's households are not quite as wealthy as their New Zealand counterparts but inequality in Australia is lower than that in New Zealand.

"... New Zealand households have amongst the highest material living standards in the world"

INTRODUCTION

At the turn of the 20th century New Zealand was one of the richest economies in the world as measured by Gross Domestic Product (GDP) per capita (Maddison, 2007). In recent decades, however, New Zealand's economic performance has been more modest. A relative decline in productivity has become a national concern, evidenced by the establishment of the New Zealand Productivity Commission in 2010.

It is important to remember, however, that one common measure of productivity – GDP per capita – has limitations. GDP is a macroeconomic indicator of economic production; it is not a measure of overall wellbeing, nor a comprehensive measure of material wellbeing. Furthermore, it has recently been argued that the gap between what is measured in national accounts and that which determines the material wellbeing of individuals is widening (Coyle, 2014). As such, there is a growing need to find improved measures of material wellbeing. Inspired by the recommendations of the Stiglitz-Sen-Fitoussi Commission for the measurement of wellbeing, we have developed a new framework for summarising aspects of material wellbeing (for details, see: Grimes and Hyland, 2015). We apply the framework to a dataset comprising 800,000 households from across 40 countries in three separate years. This note explores the findings of that study with emphasis on the levels and distribution of material wellbeing in New Zealand.

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A FRAMEWORK FOR CALCULATING MATERIAL WELLBEING

In their seminal report, Stiglitz, Sen and Fitoussi (2009) appeal for material wellbeing measures that reflect the household-level determinants of material wellbeing: income, consumption, and wealth. Given that household consumption can differ from income at a point in time, consumption and wealth better represent the material wellbeing of a household than income. Thus we seek to advance a material wellbeing framework based on household consumption and wealth.

Durable goods (such as housing, cars and household appliances) yield consumption benefits over time whilst also representing a store of wealth. This set of goods underpins our measure of material wellbeing. To aggregate the consumption services over various goods for a household, we estimate the annual rental value[1] of each durable good to approximate its benefit, and use the sum of the rental values, equivalised by household size, as our measure of Household Material Wellbeing (HMW).

This framework is applied to household level data from the OECD's Programme for International Student Assessment (PISA) surveys, which include questions regarding the presence of household durables in the 15-year-old respondents' homes, covering 16 consumer goods which range from the inexpensive (books), to expensive consumer durables (cars), whiteware (a dishwasher), utilities (an internet connection), and housing characteristics (the number of bedrooms and bathrooms in the house). This allows us to construct a dataset of household possessions for almost 800,000 households, covering 40 countries in the years 2000, 2009 and 2012.

Our estimates provide a good representation of the material wellbeing of those at most points of the wealth distribution, and particularly for those at the bottom of the wealth distribution. However the available dataset necessarily truncates our material wellbeing estimate for the very wealthy. For instance, with respect to car ownership, a Ferrari is treated as being identical to a Corolla, while a household with five or more cars is counted as if they have four. Our estimates may be considered within a capabilities framework in which a car is treated as a vehicle that provides transport services, whilst abstracting from other attributes[2].

We compare HMW distributions across countries and over time through two metrics. First, we examine the average HMW level within countries, which we term the Material Wellbeing Index (MWI). Second, we calculate the Atkinson Inequality Measure (AIM), which summarises the level of inequality in the underlying distribution[3]. Focusing on households with a 15-year old provides an element of demographic control to our measures, since those households are likely to be at a similar stage of family life. This is a strength of our analysis, and contrasts with national accounts measures, which do not adjust for demographic differences.

Before discussing our specific findings, we consider how our material wellbeing measures accord with some other available measures. We find that households with higher incomes tend to own a greater number of household durables – a relationship consistent with both intuition and economic theory. However, we also observe a substantial degree of overlap in HMW distributions across adjacent income bands, suggesting there is additional information captured in our measure that is not captured through income-only measures. Similarly, at the national level, we find a strong positive relationship between MWI and Gross National Income (GNI) per capita across all years, whilst countries with higher levels of income inequality tend to have higher levels of inequality in household durables. This indicates that our framework produces results that are both intuitively and theoretically sensible.

Given the degree of variation in MWI for countries with similar levels of GNI per capita, what additional information is captured by our framework? We find that the quality of national institutions which facilitate lending helps explain the variation between GNI per capita and MWI. This is a key result. Income varies considerably over an individual's life-cycle, and standard

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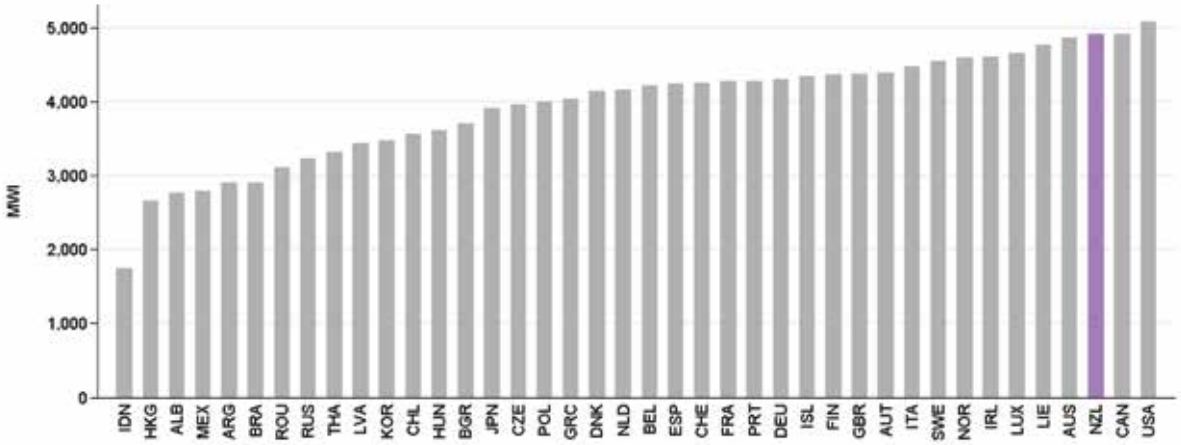
1. We use 2012 US prices in defining HMW so as to focus on differences in possession rates. We abstract from institutional factors which may cause prices to differ over time and across countries.
2. For full details related to our theoretical framework and index construction see Grimes and Hyland (2015). That paper also discusses additional limitations of our measure and conducts a number of robustness tests examining whether alternative assumptions substantially change our results.
3. We focus on the AIM rather than the more common Gini coefficient due to technical advantages of the former, however our results are consistent across the two measures. For a discussion of the advantages of the AIM over the Gini coefficient see Foster, López-Calva and Székely (2005). The AIM allows for a range of social preferences over inequality through an independent parameter, ε, which is often constrained to the interval [0,2]. This note focuses on the case of $\varepsilon = 1$, denoted as AIM(1). The results arising from alternative preferences are discussed in Grimes and Hyland (2015).

models show that it is desirable to dampen life-cycle fluctuations in consumption through borrowing and saving. Countries with efficient financial systems enable families with children (our sample) to have consumption that better reflects their lifetime income rather than their current income, thus raising their lifetime wellbeing. Our consumption-based measure reflects this consideration whereas income-based measures do not.

MATERIAL WELLBEING COMPARISONS

How does the material wellbeing of New Zealand households compare with that of other countries? Figure 1 plots the level of MWI for each country in our sample for 2012[4].

FIGURE 1: Cross-country MWI Levels, 2012



We observe MWI values ranging from $1,741 in Indonesia to $5,075 in the United States; New Zealand enjoyed an MWI of $4,907 in 2012, ranking New Zealand third highest across the 40 countries in our sample, behind the United States and Canada, but ahead of Australia and some other high income countries such as Norway and Switzerland. New Zealand's high MWI ranking in 2012 followed rankings of fourth and second in 2000 and 2009, respectively.

New Zealand's consistently high level of average wellbeing reflects pronounced ownership levels for both cars and bathrooms - New Zealand had the second and seventh highest mean possession rate for cars and bathrooms, respectively, in 2012. However, there are categories in which New Zealand's possession rates are less favourable; New Zealand ranked 23rd by mean number of bedrooms and 24th by the proportion of households with a quiet place for the student to study[5]. The less favourable New Zealand outcomes for bedrooms and study places possibly reflect housing pressures in Auckland, home to one-third of New Zealand's population.

4. See Table 1 for country codes.

5. Our measures are equivalised for household size.

FIGURE 2: MWI Growth Rates 2000-2009

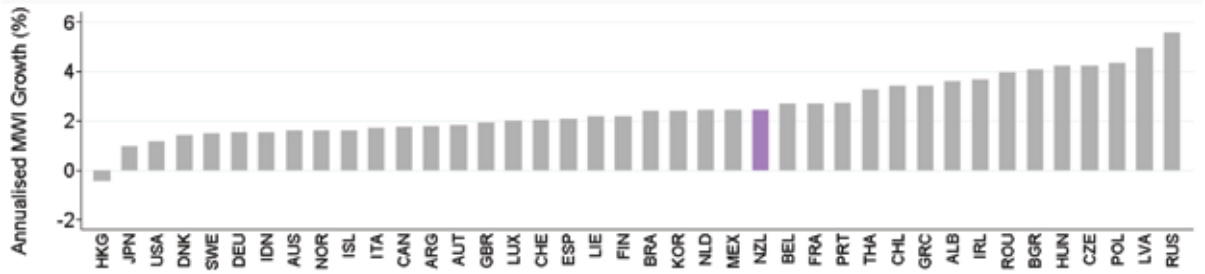


Figure 2 documents the annualised MWI growth rates over the 2000-2009 expansionary period. We find that Hong Kong was the only country to have a lower level of MWI in 2009 than they had at the beginning of the period; in contrast, Russia enjoyed an annualised growth rate of 5.6%. New Zealand enjoyed moderate MWI growth over the economic expansionary period, with 2.4% growth per annum, the 16th highest growth rate across the 40 countries.

FIGURE 3: MWI Growth Rates 2009-2012

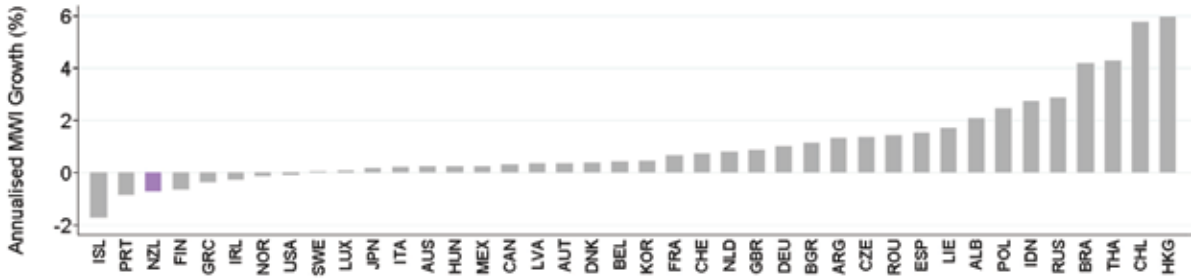


Figure 3 portrays MWI growth over the post-GFC period, 2009-2012. We find that growth rates were substantially lower in this period compared to the earlier period; the distribution of growth rates in the post-GFC period had a median value of 0.4% per annum, compared to a median of 2.3% in the earlier period. This suggests a strong positive relationship between changes in global economic activity and average household material wellbeing. New Zealand was one of only 8 countries which experienced a reduction in MWI over the latter period; others included the United States as well as Portugal, Ireland and Greece, which each had well-publicised economic contractions following the GFC.

FIGURE 4: MWI Growth Rates 2000-2012

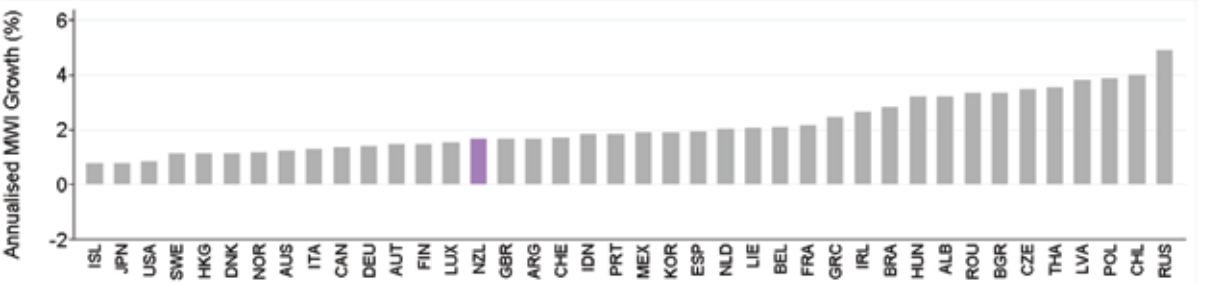


Figure 4 combines the two previous panels, depicting average growth rates in MWI over 2000-2012. It shows that every country enjoyed a higher level of MWI in 2012 than in 2000. Annual growth rates over the full period ranged from 0.8% for Iceland, to 4.9% for Russia. Strong growth was noted across many Eastern European countries. New Zealand had the 15th lowest growth rate of the 40 countries over the entire period, although New Zealand's MWI growth performance was ahead of that of many other high income countries. The slower relative growth rates of high income countries reflects the "convergence hypothesis" by which poorer countries tend to have high relative growth rates as their living standards catch up to those of the wealthier countries.

INEQUALITY COMPARISONS

The recent work by Piketty (2013) and others has contributed to a resurgence in distributional concerns. Part of the impetus for our work has been to construct a measure which is capable of reflecting distributional outcomes over resources, rather than over income.

FIGURE 5: Cross-country AIM(1) Levels 2012

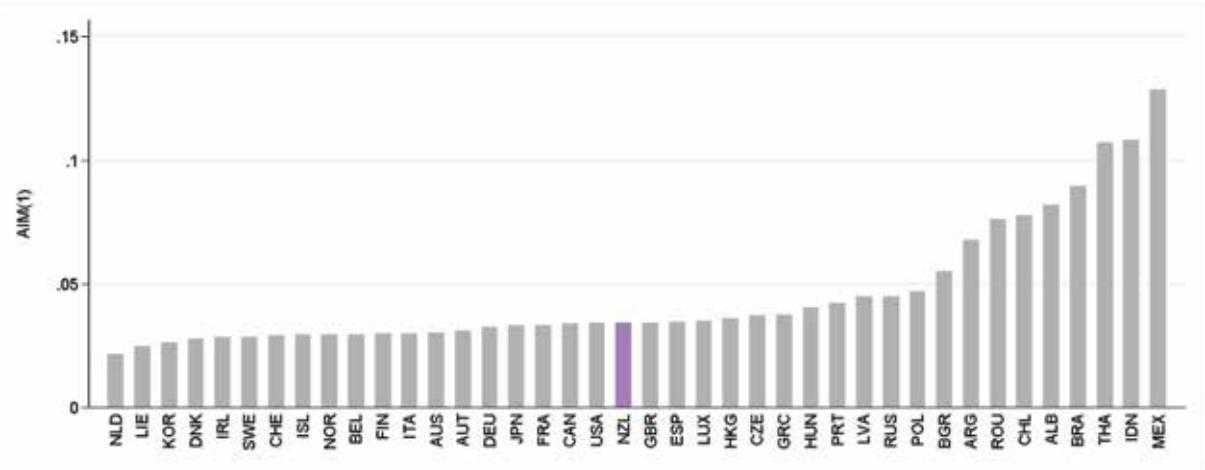
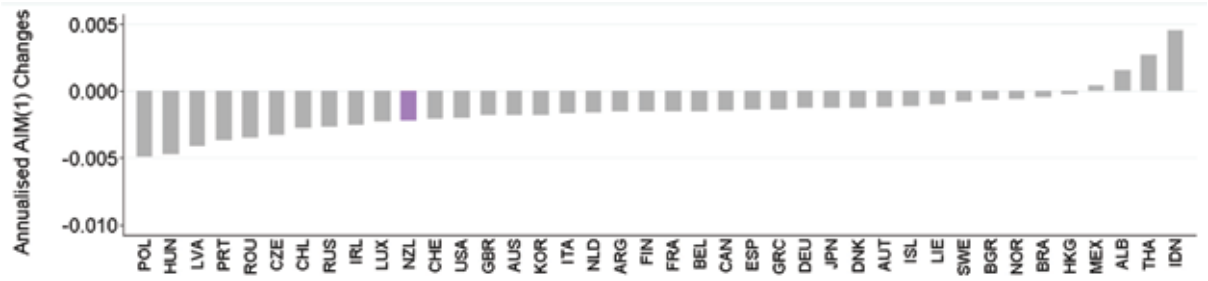


Figure 5 plots the level of household inequality, as summarised by the AIM(1) measure, for each country in our sample as at 2012. We find a broad range of inequality values, spanning from the most equal, 0.021 in the Netherlands, to the most unequal, 0.129 for Mexico; New Zealand ranks 20th out of 40 countries with a value of 0.034. This value implies that material wellbeing across New Zealand households (that have a 15-year-old child) is less equal than in Australia (at 13th). However there are only small absolute differences in inequality across the top 30 countries and little observable difference between the other Anglo-Saxon countries (United States, 18th; Canada, 19th; Great Britain, 21st).

Given that household material wellbeing is a weighted sum of possessions, one cannot attribute New Zealand's moderate level of overall inequality to the within-country inequality in any one durable good. Nevertheless, we note that New Zealand had the 11th highest degree of variation in number of bedrooms per (equivalised) household in 2012 across all countries.

FIGURE 6: AIM(1) Changes 2000-2009



We also consider how national inequality levels changed during the different periods covered in our analysis.

Figure 6 shows 36 of the 40 countries enjoyed a reduction in household inequality over the global expansionary period between 2000 and 2009. The greatest decreases were concentrated in Eastern European countries, with Poland enjoying the largest annualised reduction. New Zealand experienced the 11th largest decrease in inequality over the period.

6. Higher values of AIM(1) indicate higher degrees of inequality. See footnote 3 and Grimes and Hyland (2015) for further information about the AIM(1) measure of inequality.

FIGURE 7: AIM(1) Changes 2009-2012

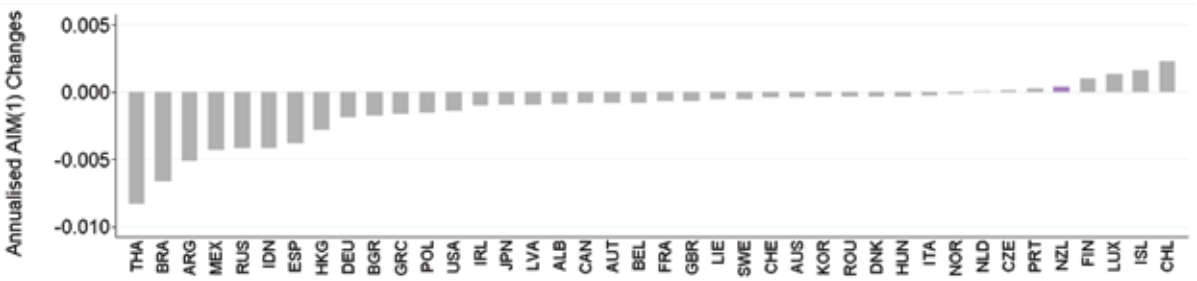


Figure 7 shows that 33 of the 40 countries in our sample enjoyed reductions in household inequality during the global contractionary period (2009-2012), a number very similar to that of the earlier expansionary period. The largest reductions in inequality between 2009 and 2012 were enjoyed by some Latin American and Southeast Asian countries. New Zealand was one of 7 countries that had a higher level of household inequality in 2012 compared with 2009, albeit the increase for New Zealand was negligible[7].

FIGURE 8: AIM(1) Changes 2000-2012

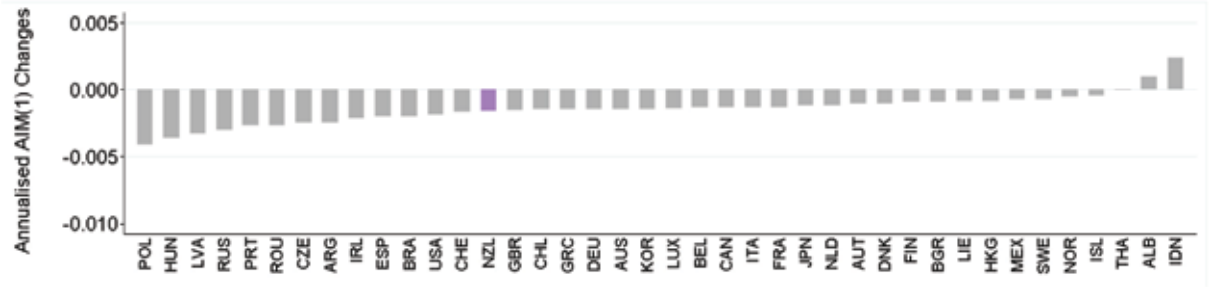


Figure 8 shows that only Albania and Indonesia had a higher level of inequality in 2012 than in 2000, whilst New Zealand had the 14th greatest decrease over this period. The greatest reductions over the full period were concentrated amongst Eastern European countries – the same set of countries where we observed the greatest growth in MWI, suggesting that the benefits of growth were benignly distributed.

In addition to reductions in within-country inequality levels for the large majority of countries, we find that the largest increases in (individual household) HWM over the full period were concentrated in the lower half of the global HMW distribution. This resulted in the global inequality of household material wellbeing (across all households in our 40 countries) falling between 2000 and 2012. This finding is consistent with Milanovic's (2012) finding that incomes globally became more equal between 1988 and 2008, as incomes in poorer countries rose faster than did incomes in richer countries.

7. The AIM(1) measure rose from 0.033 in 2009 to 0.034 in 2012 for New Zealand.

CONCLUSIONS

Our analysis shows that New Zealand had the third highest level of MWI across 40 counties, including all OECD countries, just behind the United States and Canada but ahead of Australia and all high-income Scandinavian countries.

In combination with high aggregate levels, New Zealand had a moderate level of inequality in household durables in 2012, ranking 20th out of the 40 countries considered. This level of inequality was somewhat higher than Australia, but not substantively different from that observed in other Anglo-Saxon countries. We find that household durables inequality fell in most countries, including New Zealand, over the period 2000-2012. For New Zealand, this comprised a substantial reduction in inequality over the global expansionary period with a very slight rise in inequality following the global financial crisis.

New Zealand's very high material wellbeing levels for households that have a 15-year-old child calls into question the oft-cited negative impression of material living standards in New Zealand compared with other developed countries. For various technical reasons, our measure abstracts from the influence of very rich individuals and so is likely to understate the material wellbeing of those at the very top of the wealth distribution. However, most public policy concern is with the living standards of "ordinary people", especially those near the bottom of the wealth distribution, whose living standards are well captured in our data. Contrary to the messages indicated by production per capita statistics, most New Zealand families (with secondary school aged children) do have a high standard of material wellbeing relative to their peers internationally, even in countries such as Australia, Great Britain and Scandinavia.

This high level of material welfare is accompanied by moderate levels of material inequality. As a result, policy-makers may usefully look to focus on the factors that lead to inequality in material wellbeing across households, especially for those at the lower end of the wealth distribution. These factors are likely to be complex. Nevertheless, countries in our sample (including New Zealand over 2000-2009) have reduced inequality over time, showing improvements in this respect are possible.

Our results show that New Zealand is still "a great place to bring up children", at least in material terms. Not only do we have wonderful natural amenities, but our households (with secondary school aged children) have amongst the highest material living standards in the world.

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TABLE 1: Country Codes

ALB	Albania	CZE	Czech Republic	IDN	Indonesia	NLD	Netherlands
ARG	Argentina	DEU	Germany	IRL	Ireland	NOR	Norway
AUS	Australia	DNK	Denmark	ISL	Iceland	NZL	New Zealand
AUT	Austria	ESP	Spain	ITA	Italy	POL	Poland
BEL	Belgium	FIN	Finland	JPN	Japan	PRT	Portugal
BGR	Bulgaria	FRA	France	KOR	Korea	ROU	Romania
BRA	Brazil	GBR	United Kingdom	LIE	Liechtenstein	RUS	Russia
CAN	Canada	GRC	Greece	LUX	Luxembourg	SWE	Sweden
CHE	Switzerland	HKG	Hong Kong-China	LVA	Latvia	THA	Thailand
CHL	Chile	HUN	Hungary	MEX	Mexico	USA	United States of America