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Welfare state regimes and population health: integrating the East Asian welfare states.

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ABSTRACT

Epidemiological studies have consistently shown that population health varies significantly by welfare state regime. However, these studies have focused exclusively on the welfare states of Europe, North America and Australasia. This focus ignores the existence of welfare states in other parts of the world, specifically in East Asia. This study therefore investigates whether the association between population health (Infant Mortality Rates and Life Expectancy at birth) and welfare state regimes is still valid when the welfare states of East Asia are added into the analysis. It also examines whether population health is worse in the East Asian welfare states. Infant Mortality Rates and Life Expectancy at birth as well as GDP per capita and social and health expenditures as a percentage of GDP were examined in 30 welfare states, categorized into six different regimes (Scandinavian, Anglo-Saxon, Bismarckian, Southern, Eastern European and East Asian). ANOVA analysis showed significant differences by welfare state regime in the magnitude of IMR, LE, SE, HE and GDP per capita. However, when controlling for GDP per capita in the ANCOVA analyses, only Life Expectancy (R^2=0.58, adjusted R^2=0.47, $p<0.05$) and Social Expenditure (R^2=0.70, adjusted R^2=0.61, $p<0.05$) differed significantly by welfare state regime. 47% of the variation in Life Expectancy was explained by welfare state regime type. Further, the East Asian welfare states did not have the worst health outcomes. The study concludes by highlighting the need to expand comparative health analysis both in terms of the range of countries examined and also in terms of incorporating other societal and public health factors – towards a 'public health regime' analysis.

Keywords: welfare states, welfare regimes, infant mortality rate, East Asia, GDP.

Word count: 261

INTRODUCTION

Social epidemiologists have increasingly started to look to the comparative social policy literature to help construct explanations of the differences in health that exist between countries. Specifically, welfare state regime theory has been utilised (1-7). Such studies have consistently shown that Infant Mortality Rates (IMR) vary significantly by welfare state regime. Life expectancy (LE) has been a less extensively used population health measure in such studies although those that have examined it have tended to find some patterning by welfare state regime (6, 22). However, these studies have focused exclusively on the welfare states of Europe, North America and Australasia. This focus ignores the existence of welfare states in other parts of the world, specifically in East Asia. This study therefore investigates whether the association between IMR, LE and welfare state regimes is still valid when the welfare states of East Asia are added into the analysis. It also examines whether population health is worse in the less established East Asian welfare states.

Welfare state regimes

The most influential of the welfare state regime typologies has been Esping-Andersen's *The Three Worlds of welfare capitalism*, which classified welfare states into three different welfare regime types (8-9): Liberal (Australia, Canada, Ireland, New Zealand, UK, USA), Conservative (Finland, France, Germany, Japan, Italy, Switzerland) and Social Democratic (Austria, Belgium, Netherlands, Denmark, Norway, Sweden). The states in the Liberal regime type are characterised by means-tested and residual welfare provision (8). Whereas in the Conservative regime type, welfare programmes are based on the wage-earner social-insurance model and the role of the family in welfare provision is emphasised (8). The welfare states of the Social Democratic regime are regarded as strongly interventionist, distinguished by universalism and institutionalized redistribution based on a commitment to full employment (8).

Esping-Andersen's *Three Worlds* typology has resulted in extensive academic debate (10), resulting in the emergence of various modified or alternative welfare regime typologies. Of these typologies, Ferrera's four-fold typology of European welfare states (9) has been highlighted as one of the most empirically accurate (10). His typology contained three regimes - the Scandinavian, Anglo-Saxon, and Bismarckian welfare regimes - which were broadly similar to Esping-Andersen's Social Democratic,

Liberal and Conservative regimes respectively (Table 1). However, Ferrera added a fourth regime - the Southern regime (Greece, Italy, Portugal and Spain). Welfare provision in this regime has been described as fragmented, due to diverse income maintenance schemes that range from extensive to minimal, and a restricted and partial health care system coverage (10). The regime is also characterised by a strong reliance on the family and on the charitable sector (9).

A more recent advancement in the welfare regimes literature is the emergence of Eastern European countries as a possible regime type (10-12). The Eastern European countries were until recently neglected in welfare state analysis (8) largely because of the extensive economic instability and social reforms undergone throughout the 1990s (11). These reforms have seen the demise of the universalism of the Communist welfare state and a shift towards policies associated more with the liberal welfare state regime, notably marketisation and decentralisation. In comparison to other European countries, they have limited health service provision (13).

East Asian Welfare States

Increasingly, there have been calls to reformulate and expand welfare state regime theory to include the East Asian countries (Hong Kong, Japan, Republic of Korea, Singapore, Taiwan) (14-18). The East Asian welfare regime (sometimes referred to as Confucian) (21) can be characterised by a residual approach, where there is low levels of government intervention and investment in social welfare, underdeveloped public service provision with a strong reliance on family and voluntary sector in welfare provision (19). Table 2 summarises the main features of the East Asian welfare states and each country is overviewed below. The East Asian welfare regime contains welfare provision that is similar in extent and principle to that of the Liberal regime but with an increased emphasis on the role of the state leading to different welfare state structures. For example, White and Goodman (18) have referred to the East Asian countries as 'developmental welfare systems', designed by governments to ensure economic development and prosperity. Similarly, Aspalter (15) points out that although family and the market play an important role in the design of overall welfare provision, it is still strongly regulated by the East Asian governments.

Singapore is a quintessential illustration of this largely government-regulated welfare provision. The welfare system of Singapore today is a product of the People's Action Party's (PAP) national development strategy, where the Central Provident Fund (CPF) and large-scale public housing schemes play a major role in its success (17). The CPF is a mandatory saving scheme where contributions to an individual's account are made by the individual and his employer, according to a rate set by the labour laws. Part of the CPF savings can be used for purchasing public housing units and paying for healthcare, among others. Through such arrangements, social security in Singapore is thus entirely financed by the private sector, especially for the self-employed, while public expenditures on social welfare are limited to education with some subsidies to public hospitals (41).

Like Singapore, Hong Kong's social security system is integrated such that the labour laws cover all employees (41) through a mandatory saving scheme, the Mandatory Provident Fund (40). Despite public assistance being limited to the very elderly, unemployed and vulnerable groups, the welfare state system has evolved to include a long-term strategic partnership between the NGOs and the government, which provides financial support (17). Social provisions in Hong Kong are limited to education too, though it ensures a universal coverage of healthcare services (40).

The Japanese welfare state implements redistribution policies (17) through a national insurance system for pensions and healthcare (40). Though this is coupled with enterprise-based insurance (40) and there is universal coverage, welfare provision is still considered residual as social security is highly fragmented along occupational lines (41). Private welfare provision is encouraged through the family and the community, especially for retired workers, although public pensions are sufficient for most (41) and there is a public assistance system for the needy (40).

Similar to the other three countries, Korea has a national health insurance and pension system (40). The Korean government provides unemployment benefits and universal healthcare services (41). Nevertheless, though the extent of social security coverage has increased over the years, public welfare assistance is still meagre and highly stigmatised (17). Moreover, occupations like daily labourers and family helpers are uncovered by the pension system (41), while only a third of the paid workforce is entitled to unemployment benefits (17).

In Taiwan, the coverage for the national health and unemployment insurance system is universal, with an emphasis on social rights (17, 41). However, the national pension insurance scheme is based on employment (40) where only civil servants and those of large firms will have sufficient funds to guarantee financial independence in old age due to the time needed for the funds to mature (41). Local government do provide limited welfare services, with the family still playing a major role in social welfare provision (40).

Welfare state regimes and population health

Comparative studies on population health between countries have shown that health outcomes, especially IMR, differ by welfare regime type. For example, Bambra's analysis (2) found significant differences in IMR between the three worlds of welfare: weighted IMR for the Liberal, Conservative and Social Democratic regimes were 6.7, 4.5 and 4.0 respectively. Navarro et al (6, 22) examined differences between four different welfare state regimes (grouped in terms of political traditions), where countries which have had long periods of government by redistributive political parties (most notably the Social Democratic countries) were found to have experienced lower IMR and, to a lesser extent, increased LE. These findings were reinforced by Chung and Muntaneer's (3) multilevel longitudinal analysis of welfare state regimes in which they found that around 20% of the difference in IMR among countries could be explained by the type of welfare state. Social Democratic countries had significantly lower IMR compared to all other welfare state regimes. These differences have been explained in terms of the comparatively generous, highly decommodifying and universal welfare provision typical of the welfare states of this regime (3, 6, 20-24) and the accumulative positive effect of pro-redistribution political parties on income inequalities (6, 21, 24).

Most of these studies, however, have relied exclusively on Esping-Andersen's typology (1, 4, 5) and thereby neglected to include countries in the Southern, Eastern European or East Asian regimes (3, 6, 21). There has been a move towards including the newly formulated regimes in comparative health research, as seen in two recent studies by Eikemo and colleagues (10, 12), which included the Eastern European regime (Eikemo et al., Table 1). Nevertheless, there has so far been no inclusion of the East Asian regime in comparative epidemiological research of welfare state regimes and population health. This paper thus seeks to contribute to the progress of comparative health research

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by adding the East Asian regime. Specifically, it tests if the association between health outcomes (IMR and LE) and welfare state regime type still exists with the addition of the East Asian regime. It also examines whether population health is worse in the East Asian welfare states. Since generous welfare provision and a high degree of decommodification have been associated with positive health outcomes, (2) the study also compares social expenditure and health care expenditure by welfare state regime.

METHODS

To test the above hypotheses, this study compares the variation in health status (IMR and LE) between 30 welfare states in Europe, North America, East Asia and the pacific region, categorized into six different types of welfare state regimes based on an expansion of Ferrera's typology (9), by including two additional categories for Eastern Europe (10, 12) and East Asia (25) (Table 3). Social expenditure and health care expenditure as a percentage of GDP are also compared. GDP per capita is included as a possible confounding variable. Although Australia, Canada, New Zealand and the USA were not included in Ferrera's typology (9) as his focus was on Europe only, these countries have been placed in the Anglo-Saxon regime following Bambra (2007) (26). Japan has been categorised as an East Asian country.

Following existing studies, population health is measured by IMR and LE. IMR is defined as the number of deaths of infants under one year of age in a given year, per 1,000 live births during that same year. LE and IMR data were obtained from *The World Factbook 2003* (27) as it contained the required data for all countries in this study, hence ensuring comparability. IMR and LE were chosen as the population health indicators for this study because they are routinely used as a comparative measure of health status between populations and countries (28). More importantly, IMR was chosen because previous studies have found that birth and infant-related indicators seem to be most sensitive to welfare state variables (1, 7, 22, 23) and it is widely considered to be a highly sensitive indicator of population health (29) and quality of life (22). LE was chosen as it has not yet been extensively examined in terms of the welfare states and health literature (6, 22).

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Social expenditure as a percentage of GDP (SE) is a variable that has been used to construct welfare state typologies as it reflects the quantity of welfare state provision, is highly correlated with other indicators used to construct welfare state typologies, and has been shown to be the variable that discriminates most between the regime types (30). Data for this variable was extracted from the *Organisation for Economic Co-operation and Development (OECD) Social Expenditure Database 2007* (31) for the year 2003, except for Hong Kong, Singapore and Taiwan, which were not included in the database. Comparable social expenditure data for these countries were calculated using data from the Asian Development Bank's (ADB) *Key Indicators 2007: Inequality in Asia* (32), except for Taiwan, whose data were obtained from the *Statistical Yearbook of the Republic of China 2006* (33).

Total expenditure on health as a percentage of GDP (HE) is also used as a comparison variable between the welfare states since healthcare is the largest area of welfare state service delivery (42). Health spending differs among welfare states, but the general trend is that it tends to rise with GDP per capita (43). More significantly, higher spending appears to be associated with significant improvements in health status, though this association is not applicable among the high spending countries (44). Data for HE was also extracted from *OECD Social Expenditure Database 2007* (31) for the year 2003, except for Hong Kong, Singapore, Slovenia and Taiwan. Comparable HE data for Hong Kong and Singapore were obtained from the *WHO National Health Accounts* (45), while Slovenia's was obtained from *NationMaster* (46) and Taiwan's was obtained from *Australian Institute of Health and Welfare (AIHW) health expenditure database* (47).

GDP per capita is a reflection of a country's economic well-being (3). It is highly correlated with a number of health outcomes including IMR. Thus, it is included as a confounding variable to remove economic wealth of welfare states from being a factor that can be associated with population health outcomes. Data for GDP per capita was extracted from *OECD Social Expenditure Database 2007* (31) for the year 2003, except for Hong Kong, Singapore, Slovenia and Taiwan. Comparable HE data for Hong Kong, Singapore, Slovenia and Taiwan were obtained from *The World Factbook 2003* (27).

Analysis

To assess the extent to which cross-national differences of IMR, LE, GDP per capita, SE, and HE could be explained by grouping countries according to welfare regime type, we performed one-way

ANOVA tests. We then performed one way ANCOVA tests, with GDP per capita as a covariate. We specifically tested whether the between group variance of IMR, LE, and SE (in separate steps) differed significantly from the within group variance when controlling for GDP per capita. Analyses of all data were carried out using SPSS version 15.

RESULTS

Table 4 contains descriptive data on all the variables used in the analysis in terms of minimum and maximum values, means and standard deviations). Country level data for all variables are presented in Table 5. The Scandinavian welfare state regime had the lowest average IMR (3.98) ranging from 3.42 (Sweden) to 4.9 (Denmark). The Eastern European welfare regime had the highest average IMR (6.83) rranging from 4.42 in Slovenia to 8.95 in Poland. The East Asian regime had the highest average LE of 78.7 years, whilst the Eastern European had the lowest average LE of 74.19 years. LE of the East Asian countries ranged from 80.93 years (Japan) to 75.36 years (Korea). The LE for Eastern European countries varied from 75.51 years (Slovenia) to 72.17 years (Hungary).

The Scandinavian welfare regime had the highest SE, at 26.60%, whilst the East Asian had the lowest average SE of 10.17%. SE of the Scandinavian countries ranged from 31.28% (Sweden) to 22.45% (Finland), while for East Asian countries, it varied from 17.73% (Japan) to 5.18% (Taiwan). Among all the welfare states, Sweden spent the biggest proportion of their GDP on SE, whilst Taiwan spent the least. In terms of HE, the Bismarckian welfare state regime had the highest average of 10.11% and the East Asian regime had the lowest average of 5.22%. For the Bismarckian countries, Switzerland spent the most at 11.40%, while Luxembourg spent the least at 7.60%. Among the East Asian countries, Japan had the highest expenditure at 8.10% and Taiwan had the least expenditure at 3.00%. The Bismarckian welfare state regime had the highest GDP per capita of $35007 whilst the Eastern European welfare regime had the lowest average of $16267. The GDP per capita for the Bismarckian countries ranged from $60891 (Luxembourg) to $27697 (France). GDP per capita for the Eastern European countries ranged from $19200 (Slovenia) to $12057.65 (Poland).

The results of the one way ANOVA analyses (Table 6) showed that there is a significant difference by welfare state regime in the magnitude of IMR, LE, SE, HE and GDP per capita. However, when

controlling for GDP per capita in the ANCOVA analyses, welfare state regime differences in IMR (R^2=0.40, adjusted R^2=0.24, p>0.05) and HE were no longer significant (R^2=0.15, adjusted R^2=0.07, p>0.05). However, LE differed significantly by welfare state even when controlling for GDP per capita with 47% of the difference explained by welfare state regime (R^2=0.58, adjusted R^2=0.47, p<0.05). Differences in SE (R^2=0.70, adjusted R^2=0.61, p<0.05) were also still significant.

DISCUSSION

IMR did not vary significantly by welfare state regime once we controlled for GDP per capita. However, previous studies have shown that IMR does vary significantly between different types of welfare regime (1, 3-6, 21). The inconsistency suggests that a closer examination of IMR as a health indicator for the comparative study of developed countries is warranted. Notably, there has been reported inconsistencies in the classification of infant death in different countries (34) and its calculation is only from a small non-representative segment of the population (29). Moreover, compared to IMR, newer measures such as disability adjusted life expectancy (DALE) (or health adjusted life expectancy- HALE) disability free life expectancy (DFLE) and active life expectancy (ALE) are regarded as more accurate reflections of population health and more sensitive to living conditions since they factor in disabling non-fatal health outcomes and their impact on quality of life (28, 29, 35). This consideration is especially significant in developed countries as increases in life expectancy raises concerns about morbidity and quality of life in old age (36).

Using LE as a population health indicator, the results show that health status between welfare states regimes still vary significantly even with the additional inclusion of the East Asian regime. This finding serves to reinforce the findings of previous studies (6, 26) which found that LE was significantly associated with welfare state regime type. Contrary to expectations that it would be one of the worst health performers amongst the welfare regimes, the East Asian regime had the highest average LE. The LE of Singapore, Japan and Hong Kong were higher than many of the welfare states in the other regime types, even those in the Scandinavian welfare regime. This finding is in contradiction to the expectations of the welfare state regimes literature which has usually found that high social expenditure and high decommodification results in better health outcomes (e.g. 2, 3). The fact that this study has found that LE is high even within the rather minimalist East Asian welfare model

suggests that other social and cultural public health factors are also of importance when comparing international health outcomes. Public health studies have long highlighted the healthy diet of the East Asian countries, and the smoking epidemic is less developed in these countries. Similarly, our study shows that despite having one of the highest average SE and HE, the Bismarckian and Anglo-Saxon welfare state regimes had lower LE than the East Asian welfare regime. This finding thus lends itself to the conclusion that higher spending is not always associated with significant improvements in health status among the high spending countries (44). This may be due to lower levels of decommodification, higher levels of income inequality, or on how the social expenditure is used (8).

Taken together, these results suggest that future research on welfare state regimes and population health needs to incorporate wider public health indicators, not just social policy ones. For example, as in this study, health care expenditure (HE) and health care provision variables (such as proportion of publicly funded hospital beds) could be included in comparative analysis (37, 38), as could mediating health behaviour variables (such as smoking rates). This would lead into the construction and analysis of a wider public health-focused analytical framework: the 'public health regime'(39). The 'public health regime' consists of the legislative, social, political, and economic structures that have an impact on both public health and public health interventions (39). This analytical framework would enable the expansion of comparative health research so that it includes East Asian, Latin American and other previously overlooked countries (39). It will also enable an analysis of the efficacy of policy and interventions for health outcomes of interest at both national and international level. At the international level, this analysis could help differentiate between those policies and interventions that are effective in different contexts and are therefore potentially applicable in other countries with similar conditions (39).

Limitations

Nonetheless, the above evaluation of the main study findings should be reviewed with the methodological limitations in mind. The analysis was not adjusted for other health factors (such as smoking prevalence) which could all have a confounding effect on the study results. Furthermore, as the main purpose was to investigate if previous study findings of significant health differences between welfare regimes still apply with the inclusion of the East Asian regime, this study was

conducted using data from only one year. Hence, the effects of changes in welfare policies that were likely to have occurred in these welfare states on health outcomes were not captured. The application of Ferrera's expanded welfare regime typology is also a limitation. Due to the restricted scope of the study, the grouping of Australia, Canada, New Zealand and US within the Anglo-Saxon regime in the typology was based on basic comparative observations of the other welfare regime typologies instead of ideally applying Ferrera's theoretical approach. The inclusion of the Eastern European and East Asian countries as additional welfare regimes was also not based on the application of Ferrera's theoretical approach. Also, though Ferrera's typology may have been accurate when it was first formulated, it has been recognized that welfare regime patterns change over time (30) and the classifications applied in this study may not be relevant for the year of data used.

CONCLUSIONS

This study has shown that the variation in health status between countries differs by the welfare state regime type, even with the inclusion of the East Asian welfare states. However, in contrast to other studies, high social expenditure did not always result in better health outcomes. Future research in comparative health analysis could thus benefit from being more inclusive of health system and health behaviour factors - a 'public health regime' analysis (39). The development of such analysis would enable the inclusion of both the developed welfare states and the previously excluded less developed welfare states, enabling a more comprehensive study of the structural mechanisms through which welfare state and public health features influence population health outcomes (39).

Author contribution statement

SAK planned the study, collected data, conducted analysis and drafted the paper. TE assisted in the analysis and contributed to write up. CB supervised the planning of the study, data collection and analysis and contributed to write up.

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Table.1 Welfare regime typologies

Author	Measures	Welfare state regimes				
Esping-Andersen (40)	18 countries ▪ Decommodification ▪ Social stratification ▪ Private–public mix	**Liberal** Australia Canada Ireland New Zealand UK USA	**Conservative** Finland France Germany Japan Italy Switzerland	**Social Democratic** Austria Belgium The Netherlands Denmark Norway Sweden		
Ferrera (9)	15 countries ▪ Coverage ▪ Replacement rates ▪ Poverty rates	**Anglo-Saxon** Ireland UK	**Bismarck** Austria Belgium France Germany Luxembourg The Netherlands Switzerland	**Scandinavian** Finland Denmark Norway Sweden	**Southern** Italy Greece Portugal Spain	
Eikemo et al. (10, 12)	21 countries ▪ Based on Ferrera's typology (1996)	**Anglo-Saxon** Ireland UK	**Bismarck** Austria Belgium France Germany Luxembourg The Netherlands Switzerland	**Scandinavian** Finland Denmark Norway Sweden	**Southern** Italy Greece Portugal Spain	**Eastern European** Czech Republic Hungary Poland Slovenia

Source: Adapted from Bambra 2007 (26)

Table 2 Key features of the East Asian welfare states

East Asian countries	Features of welfare provision
Hong Kong	- Assistance limited to very elderly, unemployed and vulnerable groups. - Pensions from mandatory saving scheme. - Social provision in education and welfare services predominantly by non-profit sector. - Universal healthcare services.
Japan	- National insurance system for pensions and healthcare, coupled with enterprise-based insurance. - Residual welfare provision by state, private sector provision is encouraged although there is a public assistance system for income insufficiency.
Singapore	- Mandatory saving schemes under Central Provident Fund for retirement, housing, healthcare and education expenses. - Targeted welfare assistance, family and community role on welfare provision emphasised. - Role of non-profit sector in welfare provision encouraged by state.
Republic of Korea	- System of national health insurance and national pension. - Welfare assistance for poor and unemployment provided by the government.
Taiwan	- National health and unemployment insurance system. - Pension is based on employment. - Local government provide limited welfare services, family play a major role.

Source: Adapted from Walker and Wong 2005 (41)

Table 3 Categorisation of welfare states into 6 regimes

Scandinavian	Anglo-Saxon	Bismarckian	Southern	Eastern European	East Asian
Denmark Finland Norway Sweden	Australia Canada Ireland New Zealand UK USA	Austria Belgium France Germany Luxembourg Netherlands Switzerland	Greece Italy Portugal Spain	Czech Republic Hungary Poland Slovenia	Hong Kong Japan Republic of Korea Singapore Taiwan

	Infant mortality rate (deaths per 1,000 live births)[a]			
	Minimum	Maximum	Mean	Std. deviation
Scandinavian	3.42	4.9	3.98	0.64
Anglo-Saxon	4.83	6.75	5.53	0.75
Bismarckian	4.23	4.65	4.4	0.16
Southern European	4.54	6.19	5.65	0.76
Eastern European	4.42	8.95	6.83	2.27
East Asian	3.3	7.31	5.29	1.8
Total (all countries)	3.3	8.95	5.21	1.4

	Life expectancy at birth (years) [a]			
	Minimum	Maximum	Mean	Std. deviation
Scandinavian	77.1	79.97	78.52	1.27
Anglo-Saxon	77.14	80.13	78.49	1.24
Bismarckian	77.66	79.99	78.65	0.77
Southern European	76.35	79.4	78.47	1.43
Eastern European	72.17	75.51	74.19	1.51
East Asian	75.36	80.93	78.7	2.45
Total (all countries)	72.17	80.93	77.99	2.03

	GDP per capita ($)[a]			
	Minimum	Maximum	Mean	Std. deviation
Scandinavian	27950.96	38252.51	31690.66	4535.82
Anglo-Saxon	23788.54	37469.86	31294.37	4637.47
Bismarckian	27697.20	60891.80	35007.28	11570.53
Southern European	18771.21	27267.13	24252.31	3781.79
Eastern European	12057.65	19200.00	16267.93	3183.30
East Asian	18000.00	27738.47	23494.69	4531.61
Total (all countries)	12057.65	60891.80	27971.14	8904.65

	Social Expenditure (% of GDP) [b]			
	Minimum	Maximum	Mean	Std. deviation
Scandinavian	22.45	31.28	26.60	3.76
Anglo-Saxon	15.93	20.64	17.66	1.69
Bismarckian	20.52	28.72	24.56	3.35
Southern European	20.31	24.19	22.33	1.83
Eastern European	21.13	24.90	22.91	1.55
East Asian	5.18	17.73	10.17	5.39
Total (all countries)	5.18	31.28	20.53	6.27

	Total expenditure on health (% of GDP) [a]			
	Minimum	Maximum	Mean	Std. deviation
Scandinavian	8.00	10.00	9.18	0.84
Anglo-Saxon	7.30	15.10	9.42	2.92
Bismarckian	7.60	11.40	10.11	1.27
Southern European	8.10	9.70	8.65	0.72
Eastern European	6.20	8.40	7.58	1.02
East Asian	3.00	8.10	5.22	1.89
Total (all countries)	3.00	15.10	8.50	2.32

a *Source:* OECD (34) except for Hong Kong, Singapore, Slovenia and Taiwan which were obtained from CIA World Factbook (31).
b *Source:* OECD (34) except for Hong Kong, Singapore and Taiwan which were calculated based on Walker and Wong's definition of its constituent parts (19): central government expenditure on education, health, social security and welfare, housing and community amenities. *Source:* ADB (32) for Hong Kong and Singapore, Executive Yuan (33) for Taiwan

Table 5: Country level data

	GDP per capita	Infant mortality rate (deaths per 1,000 live births)	Life expectancy at birth (in years)	Social Expenditure (% of GDP)	Total expenditure on health (% of GDP)
Scandinavian	31690.66	3.98	78.52	26.60	9.18
Denmark	30869.25	4.90	77.10	27.58	9.30
Finland	27950.96	3.73	77.92	22.45	8.00
Norway	38252.51	3.87	79.09	25.07	10.00
Sweden	29689.92	3.42	79.97	31.28	9.40
Anglo-saxon	31294.37	5.53	78.49	17.66	9.42
Australia	31248.36	4.83	80.13	17.90	8.60
Canada	30805.93	4.88	79.83	17.27	9.80
Ireland	34580.16	5.34	77.35	15.93	7.30
New Zealand	23788.54	6.07	78.32	18.01	8.00
United Kingdom	29873.37	5.28	78.16	20.64	7.70
United States	37469.86	6.75	77.14	16.20	15.10
Bismarckian	35007.28	4.40	78.65	24.56	10.11
Austria	31739.74	4.33	78.17	26.05	10.20
Belgium	30586.13	4.57	78.29	26.48	10.50
France	27697.20	4.37	79.28	28.72	10.90
Germany	28932.52	4.23	78.42	27.25	10.80
Luxembourg	60891.80	4.65	77.66	22.25	7.60
Netherlands	31853.68	4.26	78.74	20.67	9.40
Switzerland	33349.91	4.36	79.99	20.52	11.40
Southern European	24252.31	5.65	78.47	22.33	8.65
Greece	26090.84	6.12	78.89	21.30	8.50
Italy	27267.13	6.19	79.40	24.19	8.30
Portugal	18771.21	5.73	76.35	23.51	9.70
Spain	24880.06	4.54	79.23	20.31	8.10
Eastern European	16267.93	6.83	74.19	22.91	7.58
Hungary	15630.36	8.58	72.17	22.68	8.40
Czech Republic	18183.70	5.37	75.18	21.13	7.40
Poland	12057.65	8.95	73.91	22.93	6.20
Slovenia[a, c]	19200.00	4.42	75.51	24.90	8.30
East Asian	23494.69	5.29	78.70	10.17	5.22
Japan	27738.47	3.30	80.93	17.73	8.10
Korea	19334.97	7.31	75.36	5.69	5.40
Hong Kong[a, b, c]	27200.00	5.63	79.93	13.57	5.39
Singapore[a, b, c]	25200.00	3.57	80.42	8.66	4.20
Taiwan[a, b, c]	18000.00	6.65	76.87	5.18	3.00

Source: OECD (34) except for Hong Kong, Singapore, Slovenia and Taiwan

a GDP per capita, IMR, LE *Source:* CIA World Factbook (31).

b SE based on Walker and Wong's definition of its constituent parts (19): central government expenditure on education, health, social security and welfare, housing and community amenities. *Source:* ADB (32) for Hong Kong and Singapore, Executive Yuan (33) for Taiwan.

C HE *Source:* WHO National Health Accounts (45) for Hong Kong and Singapore, NationMaster (46) for Slovenia and AIHW health expenditure database (47) for Taiwan.

		Sum of Squares	df	Mean Square	F	Sig.
Life Expectancy at Birth	Between Groups	68.61638	5	13.72328	6.42	0.00
	Within Groups	51.26291	24	2.135955		
	Total	119.8793	29			
Infant Mortality Rates	Between Groups	21.52426	5	4.304852	2.92	0.03
	Within Groups	35.43621	24	1.476509		
	Total	56.96047	29			
Social Expenditure, % GDP	Between Groups	790.969	5	158.1938	10.88	0.00
	Within Groups	349.0957	24	14.54565		
	Total	1140.065	29			
GDP per capita	Between Groups	1167952253	5	233590451	4.95	0.00
	Within Groups	1131537175	24	47147382		
	Total	2299489428	29			
Total expenditure on health, % GDP	Between Groups	81.03571	5	16.20714	5.20	0.00
	Within Groups	74.84638	24	3.118599		
	Total	155.8821	29			

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