HOW DO EMPOWERMENT AND SELF-DETERMINATION

AFFECT NATIONAL HEALTH OUTCOMES?

Arlene Garces-Ozanne[1], Edna Ikechi Kalu[2] and Richard Audas[3]

Address for correspondence:

Arlene Ozanne
Department of Economics
University of Otago
PO Box 56
Dunedin
NEW ZEALAND
Email: arlene.ozanne@otago.ac.nz
Telephone: 64 3 479 9079

HOW DO EMPOWERMENT AND SELF-DETERMINATION

AFFECT NATIONAL HEALTH OUTCOMES?

Arlene Garces-Ozanne[1], Edna Ikechi Kalu[2] and Richard Audas[3]

---

[1]Corresponding author. Department of Economics, University of Otago, Dunedin, New Zealand.
[2]Atlantic Regional Training Centre for Applied Health Services Research, University of New Brunswick, St. John's, Canada.
[3]Women and Children's Health, Dunedin School of Medicine University of Otago, Dunedin, New Zealand.

ABSTRACT

There remains a persistent gap in health outcomes between wealthy and poor countries. Basic measures such as life expectancy, infant and child mortality remain divergent, with preventable deaths being unacceptably high, despite significant efforts to reduce these disparities.

We examine the impact of empowerment, measured by Freedom House's ratings of country's political and civil rights freedom, while controlling for per capita GDP, secondary school enrollment and income inequality, on national health outcomes. Using data from 1970-2013 across 149 countries, our results suggest, quite strongly, that higher levels of empowerment have a significant positive association with life expectancy, particularly for females, and lower rates of infant and child mortality.

Our results point to the need for efforts to stimulate economic growth be accompanied with reforms to increase the levels of empowerment through increased political and economic freedom.

Key Words: empowerment, self-determination, political rights, civil liberties, per capita GDP, secondary school enrollment, income inequality, life expectancy, infant and child mortality

JEL codes: I14, I15

Introduction

The past fifty years have seen significant improvements in overall health in most parts of the world (De Maio, 2014) with average global life expectancy increasing from 48 years in 1955 to 66 years in 2000, and projected to reach 73 years by 2025. On average, worldwide, under-five mortality rates have decreased from about 91 deaths per 1000 live births in 1990 to 43 in 2015 (WHO, 2016).[1] Furthermore, various health awareness campaigns and advancements in medical science have resulted in improvements in disease treatment, extension of life, alleviation of suffering and eradication or control of various infectious diseases.

Despite these health promotion interventions, social exclusion and health inequities have grown, and absolute poverty persists with about 1.2 billion people living on less than US $1.25 per day (World Bank, 2015). While overall indicators such as life expectancy and infant mortality have improved over the past decades, the health inequities between the worst-off and the best-off countries are increasing (De Maio, 2014).

Models examining the determinants of health have tended to focus on the role of the physical environment, access to medical services and individual's material well-being (social determinants of health) as being the important drivers of health outcomes (Braveman et al., 2011; Amick et al., 1995; Adler et al., 1999). More recently, social capital has been incorporated into the model, and this has typically shown that social

---

[1] Although the rate of reduction has also increased, this still falls short of the Millennium Development Goals (MDG) target of reducing under-five mortality rates by two-thirds between 1990 and 2015.

relationships and a sense of community do play an important role in health and well-being (Islam et al., 2006; Scheffler et al., 2007; Folland, 2007; and D'Hombres et al., 2010).

Less well explored is the effect of empowerment and self-determination on health and well-being. Empowerment is a complex concept that borrows from different bodies of knowledge and despite its wide use and perceived potential, has proven difficult to define (Alsop et al., 2005). Nonetheless, a good starting point for defining empowerment can be gleaned from Wallerstein (1992) and Israel et al. (1994) where empowerment is defined as a multi-level process of gaining understanding and control over personal, social, economic and political forces in order to take action to improve one's life situation.

Objectives and hypotheses

This study seeks to answer the basic question, "Will greater empowerment and self-determination have a positive effect on health outcomes?" We hypothesise that where there is greater empowerment and self-determination, there will be positive health outcomes; and that this empowerment and self-determination can be captured by measures of political and economic freedom and income equality in countries. More specifically, the study seeks to provide objective and measurable evidence on the impact empowerment has on global health outcomes.

While evidence suggests health will be positively correlated with empowerment at the individual level, we seek to examine whether this holds true at the national level and as such, we examine a wide range of data sources to develop a dataset incorporating a

variety of country-level indicators of health as well as a series of indicators of empowerment and self-determination to examine the extent to which these have an impact on health after controlling for wealth and education.

Empowerment Interventions and the Social Determinants of Health

Empowerment interventions are programs planned to strengthen the capacity of communities to solve their own problems, with the aim of improving their quality of life (Gnauck et al., 2013). For instance, empowerment interventions have been shown to increase the psychological well-being, including self-efficacy, confidence and self-esteem of participants (Laverack, 2006; Fisher et al., 2008; Wallerstein, 2006; Gibbon, 2000; Crossley, 2000; Jacobs, 2006; Aday and Kehoe, 2008), while powerlessness, or lack of control over destiny, emerges as a broad-based risk factor for disease (Wallerstein, 1992). Empowerment has also been defined as increasing the capacity of individuals or groups to make choices and to convert those choices into desired actions and outcomes (Alsop and Heinsohn, 2005). To reduce HIV risk among women, empowerment translates to economic opportunities, which lessen women's financial dependence on their partners and give them HIV-prevention options (Caldas et al., 2010; Kim et al. 2008; Romero et al., 2006). Addressing HIV risk through economic empowerment has been successful in reducing health disparities. For instance, in South Africa and Kenya, microfinance, coupled with peer-mediated HIV/AIDS education that addressed gender inequity, poverty and low self-esteem, has been associated with decreased HIV risk for women, decreased number of sexual partners and increased consistent condom use in the population (Pronyk

et al., 2008; Odek et al., 2009). Empowerment interventions have also been seen to enhance healthy behaviour in young people. Young adults are often involved in risky behaviour which increases the likelihood of becoming physically harmed, engaging in more negative behaviour, limiting their potential for advancement in life, and dying prematurely (Chinman and Linney, 1998).

Varkey et al. (2010) assessed the relationship between women's empowerment and health in 75 countries (countries with available GEM[2] data in 2006). After controlling for Gross Domestic Product (GDP), GEM was found to be significantly statistically associated with infant mortality, under five mortality, fertility rate, and low birth weight. This result suggests that empowerment of women is associated with health outcomes at the national level.

Empirical framework and Data

Using cross-country data from 149 countries over the period 1970-2013, the study explores the relationship that empowerment and self-determination have with population health outcomes, controlling for education and wealth.

---

[2] Gender Empowerment Measure (GEM) is an indicator of gender inequality, economic participation, political participation, decision making, and power over economic resources.

For the purposes of this study, we measure empowerment based on Freedom House's[3], measures of political rights and civil liberties. Political rights measure the extent to which elections are free and fair, elected candidates actually rule, political parties are free to compete, opposition plays a role, and the interests of minority groups are represented in government. Civil liberties measure the extent to which individuals within a country enjoy such liberties as freedoms of expression, assembly, association, education, and religion (Freedom House, 2015). These metrics are intended to capture the extent to which individuals can have an impact on their governments and on their self-determination. We believe these are good proxies for empowerment.

Secondary school enrolment; mortality rates, life expectancy (indicators of health) and real GDP and Gini coefficients were taken from the World Bank's WDI database. Gini redistribution was calculated as the percentage gained between the market Gini coefficient and the net Gini coefficient. The greater the difference between the Gini market and the Gini net, the more income in that country is redistributed through taxes and transfers.

We estimate a general unrestricted model (GUM) based on the general functional form:

$(LE_{all,i}, LE_{female,i}, LE_{male,i}, InfM_i,$ or $U5Mort_{i,}) = b_1 + b_2 (sec\_sch_i) + b_3 (freedom\_pr_i$ or $freedom\_cl_i) + b_4 (real\_gdp_i) + b_5 (gini\_net_i) + b_6 (gini\_redist_i) + b_7 (sec\_sch\_squared_i) + b_8 (freedom\_pr\_squared_i$ or $freedom\_cl\_squared_i) + b_9 (real\_gdp\_squared_i) + b_{10} (gini\_net\_squared_i) + b_{11} (gini\_redist\_squared_i) + e_i$

---

[3] A non-governmental organisation that promotes research on democracy, political freedom and human rights based in the United States.

Where, i indexes countries and b_1, b_2, b_3...b_{11} are the coefficients of the variables. The variables are defined as follows:

$LE_{all,i}$	life expectancy at birth indicates the average number of years a newborn is expected to live if mortality patterns at the time of its birth remain constant throughout its life
$LE_{female,i}$	life expectancy at birth of newborn females
$LE_{male,i}$	life expectancy at birth of newborn males
$InfM_i$	infant mortality rate (per 1000 live births) is the number per 1,000 live births of babies that die before reaching age of one
$U5Mort_i$	under-five mortality rate is the number per 1,000 live births of newborn babies that die before reaching age of five years
sec_sch_i	secondary School enrollment is the percentage of total enrollment, regardless of age, to the population of the age group that officially corresponds to the secondary level of education
$freedom\_pr_i$	Freedom-Political Rights measures the degree to which people are allowed to take part in the political process, including the right to vote freely in elections, compete for public office, join political parties and organisations, and elect accountable representatives who able to influence public policies; a rating of 1 indicates the highest degree of freedom and 7 the lowest level of freedom
$freedom\_cl_i$	Freedom-Civil Liberties rates the people's freedom of expression and belief, associational and organisational rights, rule of law, and personal autonomy without interference from the state; countries with a rating

of 1 enjoy a wide range of civil liberties, including freedoms of expression, assembly, association, education, and religion, and countries with a rating of 7 have few or no civil liberties

real_gdp$_i$	average real GDP per capita
gini_net$_i$	Gini index net, also known as after-tax Gini index measures inequality in income after considering the effect of taxes and social spending already in place in a country
gini_redist$_i$	Gini index redistributed takes into account the income and wealth transfer machineries existing in a country, which include taxation, monetary policies, welfare, land reform, charity, confiscation, divorce or tort law
sec_sch_squared$_i$	square of *sec_sch$_i$*
freedom_pr_squared$_i$	square of *freedom_pr$_i$*
freedom_cl_squared$_i$	square of *freedom_cl$_i$*
real_gdp_squared$_i$	square *real_gdp$_i$*
gini_net_squared$_i$	square of *gini_net$_i$*
gini_redist_squared$_i$	square of *gini_redist$_i$*

Not all data is available for all years for all countries. However each of the measures is available back to the early 1970s. As such we average the variables across all available years from 1970 onwards, making this effectively a cross sectional dataset.

Table 1 presents summary statistics for the main variables used in the analysis.

Table 1: Descriptive Statistics by Freedom type

	High Freedom	Medium Freedom	Low Freedom
Life Expectancy (all)	71.67	61.94	54.7
Life Expectancy (female)	74.66	63.98	56.52
Life Expectancy (male)	68.66	59.08	53.65
Infant mortality (per 1000 births)	21.15	58.48	89.33
Under 5 Mortality	27.33	88.99	139.52
Real GDP per capita ($US)	20,393.89	6039.39	4199.43
Secondary School Enrolment (%)	89.95	58.98	39.56
Tertiary Enrolment (%)	33.01	17.26	9.87
Gini Coefficient (net)	34.31	42.83	40.36
Gini Coefficient (market)	45.61	46.32	42.87
Gini Redistribution	39.79	9.45	6.45

For Table 1, we calculated 'total freedom' as the sum of *freedom_pr* and *freedom_cl*.

High Freedom Countries are those with a combined total freedom score of less than 6.

Medium Freedom Countries are those with a combined total freedom score between 6

and 9. Low Freedom Countries are those with a score greater than 9. A list of which

countries fall into each category is provided in Appendix 1.

The descriptive statistics reveal most of the expected patterns. Those nations classified as

'High Freedom' have the longest life expectancies, the lowest infant and child mortality.

However, there are a few striking findings that warrant particular mention. First, the

differences in GDP between 'High Freedom' countries and the others is dramatic, with

per capita GDP being more than three times greater than 'Medium Freedom' countries

and almost five times greater than 'Low Freedom' nations. Furthermore, participation in

tertiary education is almost twice that of 'Medium Freedom' countries, and almost three

and half times that of 'Low Freedom' Countries. At first glance, the Gini coefficients

do not in themselves demonstrate sizeable differences between freedom categories,

however the measure of how much wealth redistribution takes place reveals enormous differences with the level of redistribution being four times larger and seven times larger for 'High Freedom' countries compared to 'Medium Freedom' and 'Low Freedom' countries, respectively.

The variables are also standardised to give the data a normal distribution. Quadratic terms are generated for each variable and included in the equation to explore any non-linearities that might exist. The squared terms for school enrolment, civil liberties, property rights, real GDP and the Gini indices provide the opportunity to explore how these variables behave at higher levels; for instance, exploring the effect of having more school enrolment on life expectancy or mortality rates and if there is a level beyond which there is a reverse effect.

The "General-to-specific" (GETS algorithm implemented in PcGets (Hendry and Krolzig, 2001), is used to estimate the relationship between health outcomes and empowerment. "GETS involves simplifying a 'general' unrestricted model that adequately characterises the empirical evidence within a theoretical framework, by a 'testing down' process, eliminating variables with coefficients that are not statistically significant, thus leading to a simpler 'specific' congruent model that encompasses rival models" (Campos et al., 2005).

Empirical Results and Discussion

Overall, the results of the estimations support our hypothesis that empowerment, measured in terms of political and civil liberties, has positive health outcomes at the national level.

Tables 2 and 3 present the results for each of the estimated general unrestricted models (GUMs) and the corresponding specific models selected by the GETS estimation process. The difference between Table 2 and Table 3 is that Table 2 includes Freedom Property Rights while Table 3 includes Freedom Civil Liberties. We are interested in the individual associations that both metrics of empowerment have on health outcomes. However, the high degree of collinearity between the measures means that separate models must be estimated.

Across all the estimated models, the results show that education and wealth (measured in terms of secondary school enrollment and real per capita GDP respectively) are in general, robust predictor variables for all of the national health outcome measures. As expected, more education and wealth improve health outcomes. It is also interesting to note that the squared terms for education and wealth are also statistically significant, suggesting that the effect of secondary schooling and real GDP on national health outcomes diminish at higher levels of education and real GDP. That is, while more education and more wealth improve health outcomes, the effect of increasing education and wealth is not sustainable in that at much higher levels of education and wealth the impact on health outcomes are smaller.

Focusing now at the effects of empowerment on national health outcomes, we find that inequality (measured in terms of the Gini coefficient) is a significant indicator only for female life expectancy; i.e., a more equal the distribution of income (lower Gini coefficient), is associated with a higher the female life expectancy, but only in Model 1 where we use political rights freedom (*Freedom PR*) as one of the measures of empowerment.   The squared inequality variable is, however, a statistically significant, albeit negative predictor of the different life expectancy variables in general. This could indicate that greater equality in countries has a small impact on improving overall life expectancies.

The results of the estimations show relatively consistent results regardless of whether we use either the political rights freedom or civil liberties as our measure of empowerment. We find that empowerment, as measured by more political freedom/civil liberties, is associated with better health outcomes: longer life expectancies for both females and males and lower child/infant mortalities. We also find empirical evidence showing that at higher levels of empowerment, its impact on life expectancy is lower. There is no statistical evidence showing that higher levels of empowerment affect child/infant mortality.

Table 2: Estimates of the Gums and Specific Models 1: Life expectancy and mortality rates as dependent variables

	Gums					Specific Models				
	LE_{all}	LE_{female}	LE_{male}	$InfM$	$U5Mort$	LE_{all}	LE_{female}	LE_{male}	$InfM$	$U5Mort$
Constant	-0.093**	-0.102**	-0.080	0.106*	0.105*					
	(0.048)	(0.049)	(0.062)	(0.060)	(0.060)					
Sec_school	1.327***	1.318***	1.178***	-1.241***	-1.530***	1.437***	1.504***	1.292***	-1.306***	-1.578***
	(0.135)	(0.140)	(0.178)	(0.170)	(0.170)	(0.120)	(0.127)	(0.157)	(0.151)	(0.160)
Freedom PR	-0.346*	-0.396*	-0.372	0.321	0.346	-0.173***	-0.609***		0.139**	0.085*
	(0.209)	(0.216)	(0.274)	(0.262)	(0.262)	(0.046)	(0.184)		(0.061)	(0.059)
RGDP	0.664***	0.678**	0.754**	-0.796**	-0.736**	0.239***		0.267**	-0.630**	-0.570**
	(0.253)	(0.261)	(0.331)	(0.316)	(0.316)	(0.081)		(0.101)	(0.231)	(0.259)
Gini net	0.124	0.079	0.188	0.438	0.520		-0.123***		0.0294	
	(0.309)	(0.320)	(0.405)	(0.387)	(0.387)		(0.041)		(0.049)	
Gini redist	-0.007	-0.010	-0.252	-0.119	0.006					0.019
	(0.148)	(0.153)	(0.194)	(0.186)	(0.186)					(0.069)
Sec_school squared	-0.787***	-0.767***	-0.663***	0.712***	0.943***	-0.840***	-0.859***	-0.708***	0.726***	0.927***
	(0.138)	(0.142)	(0.181)	(0.173)	(0.173)	(0.130)	(0.140)	(0.170)	(0.163)	(0.167)
Freedom PR squared	0.149	0.205	0.177	-0.153	-0.217		0.390**	-0.125**		
	(0.189)	(0.196)	(0.248)	(0.236)	(0.236)		(0.178)	(0.056)		
RGDP squared	-0.882**	-0.936**	-0.927*	1.227**	1.156**				0.654*	0.572*
	(0.435)	(0.450)	(0.570)	(0.545)	(0.545)				(0.358)	(0.379)
Gini net squared	-0.258	-0.204	-0.348	-0.372	-0.462	-0.122***		-0.132**		
	(0.284)	(0.294)	(0.372)	(0.356)	(0.356)	(0.037)		(0.049)		
Gini redist squared	-0.066	-0.060	0.114	0.168	0.079					
	(0.128)	(0.132)	(0.168)	(0.160)	(0.160)					
R-squared	0.887	0.881	0.806	0.832	0.835					
Adj R-squared	0.879	0.873	0.792	0.820	0.823					
Normality	2.6589	9.846	79.428†	7.4016	10.931†	2.6007	5.3928	72.644†	8.2222	11.861†
Hetero	1.3553	1.0693	0.8301	1.4102	1.6074	1.9602	1.7665	0.6853	2.1545	2.2830
Reset	2.2305	2.2115	0.5352	4.2217	3.7172	0.4411	0.6678	0.1420	3.2577	1.8306
Chow	0.3895	0.0028	0.2752	2.2097	1.4375	1.4997	1.4974	0.6332	1.3654	1.6203
N	149	149	149	149	149	149	149	149	149	149

Notes: *, ** and *** denote statistical significance at the 10%, 5% and 1% levels respectively. Standard errors are in parentheses. Chow (n) is a parameter constancy test and is F-distributed under the null of parameter constancy. Normality is the Doornik-Hansen test for normality and is asymptotically chi-squared distributed under the null of normality. Hetero is an F-approximation of White's (1980) test for unconditional heteroskedasticity. †denotes failed diagnostic test.

Table 3: Estimates of the Gums and Specific Models 2: Life expectancy and mortality rates as dependent variables

	Gums					Specific Models				
	LE_{all}	LE_{female}	LE_{male}	$InfM$	$U5Mort$	LE_{all}	LE_{female}	LE_{male}	$InfM$	$U5Mort$
Constant	-0.100**	-0.108**	-0.088*	0.114*	0.111*					
	(0.048)	(0.050)	(0.063)	(0.060)	(0.060)					
Sec_school	1.367***	1.353***	1.206***	-1.250***	-1.556***	1.457***	1.552***	1.326***	-1.387***	-1.588***
	(0.138)	(0.143)	(0.180)	(0.172)	(0.172)	(0.120)	(0.128)	(0.155)	(0.155)	(0.160)
Freedom CL	-0.429*	-0.426*	-0.412	0.319	0.387	-0.181***	-0.672***	-0.162**	0.169**	0.088
	(0.226)	(0.235)	(0.296)	(0.282)	(0.283)	(0.050)	(0.187)	(0.066)	(0.063)	(0.064)
RGDP	0.671**	0.700**	0.767**	-0.809**	-0.748**	0.227***		0.215**	-0.214**	-0.572**
	(0.251)	(0.260)	(0.328)	(0.312)	(0.314)	(0.083)		(0.108)	(0.112)	(0.260)
Gini net	0.132	0.094	0.180	0.469	0.513					
	(0.311)	(0.323)	(0.407)	(0.388)	(0.389)					
Gini redist	-0.006	-0.008	-0.246	-0.114	0.010				-0.052	0.017
	(0.149)	(0.154)	(0.195)	(0.186)	(0.186)				(0.065)	(0.069)
Sec_school squared	-0.836***	-0.808***	-0.703***	0.738***	0.976***	-0.864***	-0.911***	-0.756***	0.752***	0.940***
	(0.142)	(0.147)	(0.185)	(0.176)	(0.177)	(0.131)	(0.142)	(0.170)	(0.167)	(0.167)
Freedom CL squared	0.219	0.231	0.197	-0.123	-0.250		0.443**			
	(0.206)	(0.215)	(0.270)	(0.257)	(0.258)		(0.179)			
RGDP squared	-0.977**	-1.037**	-1.023**	1.306**	1.240**					0.588*
	(0.435)	(0.450)	(0.568)	(0.541)	(0.543)					(0.378)
Gini net squared	-0.259	-0.210	-0.339	-0.396	-0.460	-0.120***	-0.113***	-0.132**		
	(0.285)	(0.296)	(0.373)	(0.356)	(0.357)	(0.037)	(0.039)	(0.049)		
Gini redist squared	-0.071	-0.066	0.112	0.167	0.0870					
	(0.128)	(0.133)	(0.168)	(0.160)	(0.161)					
R-squared	0.887	0.880	0.807	0.833	0.835					
Adj R-squared	0.879	0.872	0.793	0.821	0.823					
Normality	1.7026	9.1935	77.813†	6.5629	11.236†	1.8587	4.9741	70.057†	8.3179	11.887†
Hetero	1.2307	0.9322	0.5311	1.4497	1.4348	2.0119	1.4810	0.67322	2.4310	2.2172
Reset	3.1806	2.8895	0.7347	4.8818	4.4024	0.5234	0.9458	0.1899	3.3794	1.9724
Chow	0.3492	0.0099	0.2591	2.2890	1.3792	1.4664	1.0539	0.5053	1.8443	1.7036
N	149	149	149	149	149	149	149	149	149	149

Notes: *, ** and *** denote statistical significance at the 10%, 5% and 1% levels respectively. Standard errors are in parentheses. Chow (*n*) is a parameter constancy test and is *F*-distributed under the null of parameter constancy. Normality is the Doornik-Hansen test for normality and is asymptotically chi-squared distributed under the null of normality. Hetero is an *F*-approximation of White's (1980) test for unconditional heteroskedasticity. †denotes failed diagnostic test.

Conclusions

This study explores the effect of empowerment and self-determination or the idea that people are enabled and/or have the opportunity to take control over their lives and situations, on health. In the face of the current global health challenge, including the widening gap in health outcomes within and between populations, intervention strategies have to be adapted to meet current needs and should have some focus on increasing the level of empowerment in target countries. Although the Alma Ata Declaration and the Ottawa Charter of the World Health Organisation drew attention to the significance of empowerment and there is evidence of successful empowerment-based programs particularly for interventions for socioeconomically disadvantaged communities and populations (Heritage and Dooris, 2009), its impact on the health of countries is less explored. This study provides objective and measurable evidence on the impact empowerment has on aggregate health outcomes and stimulates discussion around empowerment-based health promotion interventions more globally to achieve global health equity as well as improving health and well-being, which have not been achieved by increased spending and other current intervention models.

In studying the impact that the bottom-up approach of empowerment has on health outcomes of populations, this research suggests empowerment interventions as strategic tools for reducing disparities within and between populations and an effective alternative way of thinking about improving population health.

References

Aday, R. and Kehoe, G. (2008). Working in Old Age: Benefits of Participation in the Senior Community Service Employment Program. *Journal of Workplace Behavioural Health* 23 (1-2), 125-145.

Adler, N., Marmot, M., McEwen, B. and Stewart, J. (1999). Socioeconomic status and health in industrial nations: Social, psychological, and biological pathways. *Annals of the New York Academy of Sciences* 896, New York, NY: Academy of Sciences.

Alsop, R. and Heinsohn, N. (2005). Measuring empowerment in practice: Structuring analysis and framing indicators. World Bank Policy Research Working Paper No. 3510. http://siteresources.worldbank.org/INTEMPOWERMENT/Resources/41307wps3510.pdf

Alsop, R., Bertelsen, M. and Holland, J. (2005). Empowerment in practice: From analysis to implementation. World Bank Working Paper, available from http://siteresources.worldbank.org/INTEMPOWERMENT/Resources/Empowerment_in_Practice.pdf

Amick, B., Levine, S., Tarlov, A. and Walsh. D. (1995). Introduction. In society and health. 1st edition, 3-17. New York, NY: Oxford University Press.

Braveman, P., Egerter, S., and Williams D. (2011). The Social Determinants of Health: Coming

    of Age. *Annual Review of Public Health* 32, 381-98.

Caldas, A., Arteaga, M., J. Zeladita, M. Albujar, J. Bayona, and Shin. S. (2010). Microfinance: A

    General Overview and Implications for Impoverished Individuals Living with

    HIV/AIDS. *Journal of Health Care for the Poor and Underserved* 21 (3), 986-1005.

Campos, J., Ericsson, N.R., and Hendry, D.F. (2005). "General-to-specific modeling: an

    overview and selected bibliography," International Finance Discussion Papers 838, Board

    of Governors of the Federal Reserve System (United States).

Chinman, M. J. and Linney, J. A. (1998). Toward A Model of Adolescent Empowerment:

    Theoretical and Empirical Evidence. *The Journal of Primary Prevention* 18 (4), 393–413.

Crossley, M. (2000). The 'Armistead' Project: Assessing a Community Based Health Prevention

    Programme for Gay Men/MWHSWM (Men Who Have Sex With Men). *International*

    Journal of Health Promotion and Education 38 (2), 54-64.

D'Hombres, R., Rocco, L., Shurcke, M. and Mckee, M. (2010). Does Social Capital Determine

    Health? Evidence from Eight Transition Countries. *Health Economics* 19, 56-74.

De Maio, F. (2014). Global health inequities: A sociological perspective. New York, NY:

    Palgrave Macmillan.

Fisher, B., Gosselink, P., Bradley, J. and Carol, A. (2008). Enhancing the Efficacy and

Empowerment of Older Adults through Group Formation. *Journal of Gerontological*

Social Work 51 (1-2), 2-18.

Folland, S. (2007). Does community social capital contribute to population health? *Social*

Science and Medicine Journal, 64 (11), 2342–2354.

Freedom House (2015). Freedom in the world 2015. https://freedomhouse.org/report/freedom-

world-2015/methodology.

Freire, P. (1973). Education for critical consciousness. New York, NY: Seabury Press.

Gibbon, M. (2000). The Health Analysis and Action Cycle an Empowering Approach to

Women's Health. *Sociological Research Online* 4 (4), available from

http://www.socresonline.org.uk/4/4/gibbon.html

Gnauck, K., Ruiz, J., Kellett, N., Sussman, A., Sullivan, M., Montoya, M., Levin, N., Tomedi,

A., and Mwanthi, M. (2013). Economic Empowerment and AIDS-Related Stigma in

Rural Kenya: A Double-Edged Sword? *Culture, Health and Sexuality* 15 (7), 851-865.

Hendry, David F. and Krolzig, Hans-Martin (2001), Automatic Econometric Model Selection

Using PcGets. London: Timberlake Consultants Ltd.

Heritage, Z. and Dooris, M. (2009). Community Participation and Empowerment in Healthy

    Cities. *Health Promotion International* 24 (1), 45-55.

Islam, K., Merlo, J., Kawachi, I., Lindstrom, M. and Gerdtham, U. (2006). Social Capital and

    Health: Does Egalitarianism Matter? A Literature Review. *International Journal for*

    Equity in Health 5 (3), available from

    http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1524772/

Israel, B., Checkoway, B., Schulz, A. and Zimmerman M. (1994). Health Education and

    Community Empowerment: Conceptualizing and Measuring Perceptions of Individual,

    Organizational, and Community Control. *Health Education Quarterly* 21, 149-170.

Jacobs G. (2006). Imagining the Flowers, But Working the Rich and Heavy Clay: Participation

    and Empowerment in Action Research for Health Educational Action Research.

    Educational Action Research 14 (4), 569-581.

Kim, J., Pronyk, P., Barnett, T. and Watts, C. (2008). Exploring the Role of Economic

    Empowerment in HIV Prevention. *AIDS* 22 (4), 57-71.

Laverack, G. (2006). Improving Health Outcomes through Community Empowerment: A

    Review of the Literature. *Journal of Health, Population and Nutrition* 24 (1), 113-20.

Odek, W., Busza, J., Morris, C., Cleland, J., Ngugi, E. and Ferguson, A. (2009). Effects of Micro-Enterprise Services on HIV Risk Behaviour among Female Sex Workers in Kenya's Urban Slums. *AIDS and Behaviour* 13 (3), 449-461.

Pronyk, P., Kim, J., Abramsky, T., Phetla, G., Hargreaves, J., Morison, L., Watts, C., Busza, J. and Porter, J. (2008). A Combined Microfinance and Training Intervention can Reduce HIV Risk Behaviour in Young Female Participants. *AIDS* 22 (13), 1659-1665.

Romero, L., Wallerstein, N., Lucerro, J., Fredine, H., Keefe, J. and O'Connell, J. (2006). Woman to Woman: Coming Together for Positive Change—Using Empowerment and Popular Education to Prevent HIV in Women. *AIDS Education and Prevention* 18 (5), 390-405.

Scheffler, R., Brown, T. and Rice, J. (2007). The Role of Social Capital in Reducing Non-Specific Psychological Distress: The Importance of Controlling for Omitted Variable Bias. *Social Science and Medicine* 65 (4), 842–854.

Varkey, P., Kureshi, S., Lesnick, T. (2010). Empowerment of Women and its Association with the Health of the Community. Journal of Women's Health 19 (1), 71-76.

Wallerstein, N. (1992). Powerlessness, Empowerment, and Health: Implications for Health Promotion Programs. *American Journal of Health Promotion* 6 (3), 197-205.

Wallerstein, N. (2006). What is the evidence on effectiveness of empowerment to improve

    health? Health Evidence Network report. Copenhagen: WHO Regional Office for

    Europe.

World Bank (2015). World Development Indicators. Available from

    http://data.worldbank.org/data-catalog/world-development-indicators

World Health Organization. (WHO). (2016). Global Health Observatory (GHO) data, available

    from: http://www.who.int/gho/child_health/mortality/mortality_under_five_text/en/

Appendix 1: List of Included Countries, by Freedom Level

High Freedom Countries:

Australia, Austria, Belgium, The Bahamas, Belize, Brazil, Barbados, Canada, Switzerland, Cyprus, Czech Republic, Germany, Dominica, Denmark, Dominican Republic, Spain, Estonia, Finland, France, United Kingdom, Greece, Grenada, Croatia, India, Ireland, Iceland, Israel, Italy, Jamaica, Japan, Lithuania, Luxembourg, Latvia, Malta, Mauritius, Namibia, Norway, New Zealand, Papua New Guinea, Portugal, Serbia, Suriname, Slovak Republic, Slovenia, Sweden, Trinidad and Tobago, Uruguay, United States, Venezuela.

Medium Freedom Countries:

Armenia, Benin, Bangladesh, Bulgaria, Bosnia and Herzegovina, Bolivia, Chile, Columbia, Comoros, Capo Verde, Ecuador, Fiji, Ghana, Guatemala, Guyana, Honduras, Hungary, Sri Lanka, Lesotho, Moldova, Madagascar, Mexico, Macedonia, Mali, Mongolia, Malaysia, Nicaragua, Nepal, Panama, Philippines, Poland, Paraguay, Romania, Senegal, El Salvador, Sao Tome and Principe, Seychelles, Thailand, Turkey, Ukraine, South Africa, Zambia.

Low Freedom Countries:

Afghanistan, Angola, Albania, Azerbaijan, Burundi, Burkina Faso, Bhutan, Central African Republic, China, Cote d'Ivoire, Cameroon, Republic of Congo, Cuba, Djibouti, Algeria, Egypt, Ethiopia, Gabon, Guinea, Guinea-Bissau, Haiti, Indonesia, Iran, Jordan,

Kazakhstan, Kenya, Kyrgyz Republic, Cambodia, Laos, Lebanon, Liberia, Morocco, Maldives, Mozambique, Mauritania, Malawi, Niger, Nigeria, Pakistan, Russia, Rwanda, Sudan, Sierra Leone, Swaziland, Chad, Togo, Tajikistan, Tunisia, Tanzania, Uganda, Uzbekistan, Vietnam, Yemen, Democratic Republic of Congo.