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Separating the influence of capitalism and democracy on women's well-being

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Abstract

This empirical analysis seeks to determine which institutional arrangement, capitalism or democracy, tends to be more effective at improving women's well-being and promoting gender equality in society. Country-specific indexes measuring the degree of economic freedoms that exist within the market and the degree of political rights that exist within a democracy are used in a panel data analysis to explain the observed levels of various quality of life measures reflecting issues that are relevant to women. These empirical results indicate that capitalism often has a stronger beneficial impact on many aspects of women's well-being and gender equality in society.

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1. Introduction

Francis Fukuyama (1992) has famously proclaimed that capitalism and democracy enjoy world-wide consensus as the optimal institutions for efficiently allocating society's productive resources and effectively developing public policies to promote social welfare, respectively. However, can we also assume that each institution has an equitable impact on all subsets of individuals in society? Specifically, are capitalism and democracy independently and equally effective at promoting women's well-being and gender equality in society?

On the one hand, Public Choice economists such as Tullock (1980) have argued that the constraints on competition inherent to the collective action of democratic governments tend to promote rent seeking activity. This often results in inefficient public policies that distribute social benefits in favor of those who are endowed with greater political influence at the expense of the rest of society. If gender inequality in society implies that men are endowed with more political influence, would greater political rights exercised through enhanced democracy necessarily promote women's well-being as effectively as greater economic freedoms exercised in better developed markets?

On the other hand, Neoclassical development economists such as Stiglitz (2002) have argued that many of the market friendly social institutions of capitalism often usurp the dignity and well-being of common laborers and other oppressed

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groups in society, who are ultimately treated as pawns within the profit maximization calculus of society's elite. Such exploitation requires that many economic freedoms in society should be subservient to democratically determined public policies aimed at equalizing socio-economic outcomes for all. If gender inequality in society implies that men are endowed with more economic opportunities, would greater economic freedoms exercised in a better developed marketplace be as effective at promoting women's well-being as greater political rights exercised through enhanced democracy?

How can we resolve these conflicting theoretical perspectives? After all, every society must determine where the optimal institutional boundary should be placed between the sphere of freedoms to be exercised by the individual in the marketplace and that individual's obligation to accept constraints on these freedoms that are imposed by democratically determined public policy. Indeed, Sen (1999) argues that every society must face an unavoidable trade-off between adopting those institutions that preserve the *innate* freedoms that can be exercised by individuals to enhance their well-being and adopting those social institutions that partially constrain these innate freedoms. He reminds us that the constraints are necessary to produce opportunities for all individuals in society that would enhance their well-being by exercising newly *created* freedoms through public policy. But which of these competing perspectives is correct?

When rival paradigms offer opposing perspectives on the expected impact of each institution, with each generating conflicting advice for setting the optimal theoretical boundary of individual freedoms to be exercised in society, it then becomes a matter of empirical investigation to help us sort out the truth. However, when the empirical analyses of each institution's impact on the well-being of women have been performed in isolation, this ignores the potential for a greater presence of one institution to diminish the beneficial impact imparted by the other. This means that such empirical results can also yield conflicting empirical evidence in support of one institution over the other.

This necessitates an empirical approach that allows for the potential *interaction* of each institution on the other's ability to influence the well-being of women in society. Only then can we determine which theoretical perspective appears to be a more accurate representation of reality. The following cross-country analysis examines the net impact that capitalism and democracy each have on the quality of life for women. The goal is to determine which institutional structure appears to be more effective at promoting women's well-being and gender equality while controlling for their potential interaction.

2. Considering institutional influences on women's well-being in society

It is widely accepted in the Neoclassical economics literature that a decentralized market institution is efficient for allocating the productive resources in society in an absence of Pigouvian externalities. Indeed, global economic history over the last few decades has revealed how market economies have enjoyed greater prosperity and growth relative to socialist economies. However, is the institution of capitalism also *effective* at enhancing those non-monetary measures of well-being that are germane to women?

Friedman (1962) and Hayek (1988) both argue that centralizing resource allocation decisions, even within democratic societies, diminishes the scope of opportunities that must be created for both consumers and producers to thrive within a dynamic economic environment. A decentralized market process, utilizing an unfettered market pricing system, spontaneously generates the proper incentive structure for voluntary human interaction that yields more than just greater economic efficiency. The market process generates a *greater diversity of consumption opportunities* for consumers who are seeking alternative products and services to adjust their consumption patterns optimally, as well as a greater motivation for entrepreneurs to accept more risk in discovering and employing a *greater diversity of production technologies*.

Both Hayek and Friedman maintain that this increased diversity of economic opportunities allows consumers and producers to adapt better to a dynamic local and world economy. If this increased diversity includes greater opportunities for female entrepreneurs, laborers and consumers, then it is reasonable to expect that greater economic freedoms in a country would be associated with higher levels of those non-monetary measures of well-being for women in society as well. Indeed, Fort and Schipani (2004) examine how competition for dependable, productive labor between multi-national corporations operating in developing countries has produced benefits specific to women, including non-discrimination policies and training programs, on-site child care, and other family friendly opportunities for increasing the number of women in the labor force.

What happens in the presence of Pigouvian externalities? It is also widely accepted in the Neoclassical economics literature that a representative democracy is an effective institution for generating public policies that enhance the

well-being of individuals in society by correcting the inequitable allocation of social benefits. These inequities arise when private ownership rights over the use of potentially productive resources are insufficiently defined for efficient economic use (public goods) or are not sufficiently protected from expropriation (negative externalities). However, is the institution of democracy also *efficient* at allocating these unassigned social benefits?

Wittman (1989) and Stiglitz (1989) have each argued that representative democracy can create a Pareto efficient collection of public policy proposals that maximizes the number of individuals in the electorate whose preferences are reflected in allocation of these unassigned social benefits. They describe how competition between political parties results in differentiated party platforms, which *maximizes the number of options for social benefits allocation* across the electorate. Each party develops a brand identity to be attributed to their candidates to make their respective candidate's stances on relevant policy issues easier for voters to discern, which *lowers the voter's cost for expressing their benefits allocation preferences* across elections and over time. Further, parties seek to disseminate any inefficient social benefit assignments within the opposing party's proposals, as well as any bi-partisan efficiency gains that could be exploited, effectively *decreasing the transactions costs associated with making political trades* allowing for efficient social benefit reallocations.

This Neoclassical perspective implies that a representative democracy can produce an efficient, Coasian-style reassignment of social benefits across the many conflicting voices of the electorate.¹ If this efficient reallocation reflects issues that are pertinent to women, then it is reasonable to expect that greater democratic freedoms in a country would be associated with higher quality of life measures for women in society. For example, a cross-country empirical analysis by Tzannatos (1999) has shown how democratically determined public policies have made significant differences in female labor force participation and earnings equality with men.

3. Measuring the prevalence of capitalism and democracy in society

Before the impact that the institutions of capitalism and democracy have on the well-being of any subset of people in society can be assessed, the prevalence of each institution in society must first be measured. With respect to capitalism, Hayek claims that Hume (1886) was the first to identify the key institutional characteristics of individual economic freedom that promote cooperative and socially beneficial behavior in the economic activity taking place in any society. With respect to democracy, Gastil's (1987) seminal work analyzing the variation in citizen's rights across countries identified many institutional characteristics that enhance the ability of individuals in society to achieve an effective democratic representation in public policy formation. The development of each institutional measure is discussed in turn.

Hume identified two key elements to properly functioning private markets: (1) the ability of individuals to possess productive resources and transfer their ownership by mutual consent, which is the recognition of the *private property rights* of individuals to own productive resources (including their own labor), and (2) the assurance that any voluntary promises of performance made between individuals will be enforced by a stable and predictable set of well-recognized criteria, which is the application of a *consistent rule of law* for governing private transactions (as opposed to relying on capricious statutory regulation).² Friedman adds two more important institutional characteristics of economic freedom to Hume's list: (3) the maintenance of a stable money supply in the economy to allow the *price system* to become an accurate and effective conveyance of information about relative valuations of alternate resource uses in society, and (4) the *openness of markets* to competition, including both domestic and foreign competition, and in both capital and goods markets.

Gwartney et al. (1996), working with the Fraser Institute, were among the first economists to quantify systematically within each country the many tangible characteristics that reflect various aspects of these basic components of economic freedoms and aggregate them into an index for each country. Their economic freedom index, herein referred to as the EFI, has been formulated for over 120 countries. Appendix A contains their list of the specific measures of institutional characteristics that comprise the EFI.³ Gwartney and Lawson (2005) have updated the EFI every 5 years starting in

¹ Sutter (2002) offers an enlightening discussion of the methodological differences between the Neoclassical and Public Choice perspectives on the efficiency of democracy.

² Baumol (2002) has argued that those societies respecting private property rights and operating under the rule of law are much more innovative in adapting new technologies and production processes in response to significant changes in their economic environment.

³ All appendixes are available on the JEBO website.

1975, and then annually starting in 2000. The EFI value for each country ranges from 1.0 (the least free) to 10.0 (the most free). Many studies using the EFI have found empirical support for the argument that societies adopting social institutions that retain higher levels of economic freedoms have achieved greater of material prosperity, capital investment and economic growth (for a thorough survey, see Berggren, 2003).

Gastil's list of specific institutional characteristics pertaining to the expression of political rights within a democracy can be generalized into three basic categories: (1) the ability of the population to participate in *free and fair election processes* for choosing the head of state and other government leaders, who can then *exercise true political power in policy implementation* in society; (2) the ability of the population to select from a slate of candidates from *competing political parties* promoting a *diverse set of public policy options*; and (3) the ability of the elected government to *establish public policy free from undue influences* of the military, religious hierarchies, or other powerful groups internal or external to society.

Freedom House, a non-profit political research institute, has adopted Gastil's list of those institutional characteristics that promote democratic efficacy in society and aggregates their tangible measures into an index of a political rights, herein referred to as the PRI. Appendix B contains a list of those specific sets of institutional characteristics that comprise the PRI. This index has been calculated annually for over 150 countries each year spanning the last three decades. The PRI value for each country ranges from 1.0 (the most political rights) to 7.0 (the least political rights). However, in order to compare the net impact of both the EFI and the PRI on the dependent variables more easily in the following analysis, the PRI has been converted for this analysis to a scale of 1.0 (the least political rights) to 10 (the most political rights) in order to match the scale and directional value of the EFI. Empirical studies have found mixed support for the argument that societies with stronger democratic institutions create public policy that achieves higher levels of prosperity and economic growth (for good surveys, see Przeworski and Limongi (1993) and Mulligan et al. (2004)).

4. The possible interaction between capitalism and democracy

If these two institutional freedoms can be measured in comparable indexes, their respective net impact on women's well-being can be estimated while controlling for any potential for interactions between them. However, few empirical studies investigating the influence of either economic freedom or democratic freedoms on prosperity or well-being in society have looked at their *interactive* influences. To illustrate the potential problem, an empirical analysis by Wejnert (2003) has shown that many measures of women's well-being have declined relative to men within Eastern European countries that have recently adopted greater democratic freedoms, yet Pollert (2003) examined central European countries transitioning toward more market based economies and found that many measures of women's well-being have fallen relative to men. Should both capitalism and democracy be judged as necessarily harmful to women's well-being? If a countervailing interaction does exist between these two institutions, then failing to account for such interactions could generate such apparently conflicting results when trying to quantify each institution's effect on women's well-being.

It would appear that a sort of bifurcation persists in the prevailing theoretical treatment of these two institutional freedoms within the political economy literature: the level of economic freedom exercised by individuals interacting in the marketplace is primarily assumed to explain the differences in material prosperity across societies, while the level of political rights exercised through democracy is assumed primarily to explain existing differences in non-monetary measures of well-being across societies. For example, North (1990) illustrated how market-based institutions in society are superior for achieving prosperity relative to centralized economic planning, yet he gave little attention to democracy's specific role in the development or hindrance of the benefits stemming from decentralized market institutions. Wittman (1989) and Stiglitz (1989) have each offered rigorous arguments for democracy being as inherently efficient at producing effective public policies in society as the market is inherently effective at producing efficient resource allocations, yet they both gave little attention to whether democratically determined public policy constrains the abilities of market institutions to promote human well-being in society. Ironically, more than three decades earlier, Friedman (1962) warned, "It is widely believed that politics and economics are separate and largely unconnected; that individual freedom is a political problem and material welfare an economic problem; and that any kind of political arrangements can be combined with any kind of economic arrangements... (yet) such a view is a delusion..."; he goes on to say, "The relation between political and economic freedom is complex and by no means unilateral" (pp. 7–10).

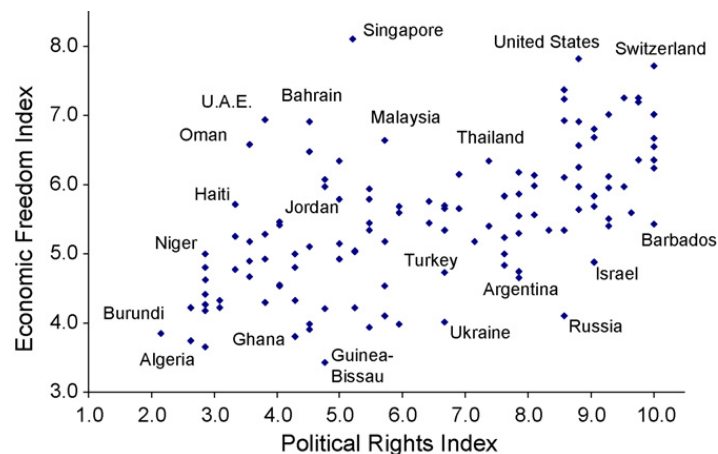


Fig. 1. Economic freedom index versus political rights index.

In light of this, Holcombe (2002) asks whether a nation's government can simultaneously provide the maximum degree of individual economic freedoms within the marketplace along with the maximum degree of political rights within a democracy. He argues that increasing the scope of democratic powers to reflect the fullest possible expression of individual political rights over public policy formation must necessarily endow individuals in society with the power to restrict the scope and efficacy of individual economic freedoms exercised in voluntary market transactions. Conversely, restraining public policy from encroaching upon any aspect of individual economic freedoms (such as income or wealth redistribution) would prevent the fullest democratic expression of the political rights in society necessary in order to address any inequality of socio-economic outcomes in society.

An implication of Holcombe's methodological critique is that the maximum empowerment of political rights to be exercised through the largest possible scope of democratic freedoms in society is not without the necessary *opportunity cost* of forgone benefits to individual well-being stemming from fewer and less potent economic freedoms. This means that the beneficial effects of these two institutions are likely to be interdependent. Additionally, when the empirical analysis of either institution fails to take this potential interdependence into account, their results will likely appear to conflict.

5. The statistical analysis

With the ability to measure the relative level of these two types of freedoms in each country, the methodological debate about the appropriate curtailment of individual economic freedoms in society through democratically determined public policy can be empirically investigated. It is possible to address policy questions relevant to women's welfare, such as: What is the net impact that economic freedoms have on various measures of women's well-being, controlling for those influences arising from the relative strength of democracy in society? What is the net impact that democratic freedoms have, controlling for those influences arising from the relative level of economic freedoms? Of those countries that have more ardently embraced democracy, have these societies predominantly created public policy that complements or constrains the ability of economic freedoms to enhance women's well-being?

Discerning the possible interdependence of capitalism and democracy requires a sample of countries with enough variation in the level of both types of freedom to reveal their respective correlation with the measures of women's welfare in society. Fig. 1 reveals the EFI and PRI values for the 121 countries for which both indexes exist. The data expressed in this graph reflects the average of 6 years of EFI values and PRI values, respectively (1975, 1980, 1985, 1990, 1995 and 2000). Not all 121 countries are used in the analysis due to data limitations on the measures of women's well-being.

Fig. 1 reveals that the U.S. and Switzerland have maintained relatively high levels of both economic freedoms and political rights, while Algeria and Burundi have maintained relatively low levels of both types of freedoms. However, countries such as Singapore and Bahrain have preserved relatively higher levels of economic freedoms while allowing relatively fewer political rights. Countries such as Argentina and (until recently) Russia have granted relatively more

Table 1
Absolute and relative female life expectancy

Dependent variable	LIFE		LIFERATIO	
Mean of dependent var.	Female life expectancy: 67.7 years		Female/male life expectancy: 107.09 (100 = equality)	
Sample years	1980, 1985, 1990, 1995, 2000		1980, 1985, 1990, 1995, 2000	
Total countries	94		94	
Total obs.	470		470	
Explan. variable (standard error)				
EFI	1.240** (0.091)	0.281** (0.079)	−0.437** (0.049)	−0.686** (0.072)
EFI*HIPRI	−0.084 (0.055)		−0.035 (0.028)	
EFI*MUSLIM		3.203** (0.337)		0.627** (0.107)
EFI*CATHOLIC		0.839** (0.109)		0.203* (0.083)
PRI	0.081 (0.055)	0.096 (0.067)	0.019 (0.028)	−0.108** (0.036)
PRI*HIEFI	−0.058** (0.020)		−0.006 (0.013)	
PRI*MUSLIM		−0.217 (0.156)		0.128** (0.046)
PRI*CATHOLIC		0.083 (0.089)		0.178** (0.044)
GDP	3.782** (0.254)	3.717** (0.238)	0.949** (0.141)	0.906** (0.109)
Std. error of regression	2.63	2.52	1.22	1.21
Adj. R-squared	0.95	0.95	0.83	0.83

* 5% Level of significance; ** 1% level of significance.

political rights while allowing relatively limited economic freedoms. The data in Fig. 1 does not fully reflect any brief but significant institutional changes that may have occurred in a particular country (such as with Argentina) and may not fully reflect significant and lasting institutional change (such as with Ukraine) over the 25-year time span from which these average index values are taken. The correlation coefficient of these average EFI and PRI values for these 121 countries is +0.576, supporting the visual impression that there may be sufficient independent variation between these two types of freedoms across countries to support an empirical investigation into their potential interaction.

If a country provides relatively more democratic freedoms, allowing citizens to exert a greater voice in public policy formation, then such policies can either promote (via the Wittman efficiency perspective) or hinder (via the Tullock rent seeking perspective) the level of women's well-being arising from the level of economic freedoms in society. Likewise, if a country exhibits relatively more economic freedoms to increase the efficiency of resource allocations in society, such allocations can either promote (via the Hayek-Friedman innovation perspective) or diminish (via the Stiglitz cronyism perspective) the level of women's well-being arising from the greater democratic expression of individual political rights in society. Whether such interactions between these two types of freedoms exist, and to what extent they impact the others freedom's influence on women's well-being, is an empirical question worth exploring.

The dependent variables used in each equation express the level of well-being in different benefit areas that are pertinent to women. The dependent variable LIFE is the years of life expectancy for women and the variable LIFERATIO is the ratio of female to male life expectancy. The dependent variable LIT is the adult literacy rate among women, and the variable LITRATIO is the ratio of female to male literacy rate. The dependent variable STUDENT is the percent of female students in secondary education, and the variable LABOR is the percent of female wage earners in the economy.

While health, education and employment opportunities are obviously important for both men and women, many development studies also point out that the ability to determine family size and control the incidence of pregnancy

Table 2
Absolute and relative female literacy

Dependent variable	LIT		LITRATIO	
Mean of dependent var.	Female literacy rate: 65.8 percent		Female/male literacy rate: 80.9 (100 = equality)	
Sample years	1980, 1985, 1990, 1995, 2000		1980, 1985, 1990, 1995, 2000	
Total countries	67		67	
Total obs.	335		335	
Explan. variable (standard error)				
EFI	4.249** (0.339)	3.886** (0.545)	2.509** (0.256)	2.126** (0.359)
EFI*HIPRI	−0.387** (0.122)		−0.295** (0.101)	
EFI*MUSLIM		6.079** (0.958)		6.526** (0.686)
EFI*CATHOLIC		−1.790** (0.547)		−1.198** (0.343)
PRI	0.264 (0.151)	0.528* (0.232)	0.262* (0.121)	0.425** (0.100)
PRI*HIEFI	−0.451** (0.078)		−0.359** (0.058)	
PRI*MUSLIM		−0.907* (0.390)		−0.814** (0.299)
PRI*CATHOLIC		−0.462 (0.257)		−0.410** (0.124)
GDP	4.973** (1.036)	4.382** (0.959)	2.508** (0.798)	2.161** (0.618)
Std. error of regression	6.01	5.77	5.02	4.67
Adj. <i>R</i> -squared	0.94	0.95	0.94	0.95

* 5% Level of significance; ** 1% level of significance.

are important aspects of the quality of life for women. For example, in an examination of inequality between men and women in society, [The World Bank \(2006, p. 26\)](#) lists “limited family planning practices” and “higher fertility rates” among the developing countries as one of many “inequality traps” that women bear relative to men. Therefore, the dependent variable FERT is the fertility rate for women of child-bearing age, and the variable CONTRA is the percent of women of child-bearing age who are practicing any form of contraception. These variables, along with per-capita income expressed in 1995 U.S. dollars (GDP), are from [The World Development \(2004\)](#) database on CD-ROM.⁴

Eq. (1) is a fixed effects regression specification used to estimate each of the eight different measures of women’s well-being in society. This specification includes the level of EFI and PRI for each country and is also designed to reflect any interaction that might influence the net impact of one type of freedom in society when it occurs in the presence of a relatively high level of the other type of freedom. Dummy variables are included that reflect those countries with a relatively high degree of the opposite type of freedom. Specifically, HIGH-PRI takes on a value of one if the level of political rights is relatively high, where the PRI for that country is among the top third (most free) of the entire sample of 121 countries, and takes on a value of zero otherwise. Likewise, HIGHEFI takes on value of one if the level of economic freedoms is among the top third (most free) and takes on a value of zero otherwise.⁵ Each dummy variable is interacted with the opposite freedom type. The log value of per-capita income (GDP) is also included to control for differences in relative prosperity across

⁴ The available demographic data spans only the last three decades, such that the following analysis will not fully capture any trans-generational impacts that are a result of the political or economic institutional arrangements that existed prior to the period being analyzed. Also, only statistics on women’s well-being are used, such that these results may not generalize to other subsets of the population.

⁵ When the proportion of free countries was changed from the freest third to the freest half of all countries, the signs, significance and relative magnitudes of the coefficient estimates remained largely unchanged. Also, *F*-tests at the 5% level rejected the hypothesis that the sum of squared errors differed across these two specifications for all regressions except LABOR. These results are available from the author upon request.

Table 3
Fertility and use of contraceptives

Dependent variable	FERT		CONTRA	
Mean of dependent var.	Fertility rate per female of child bearing age: 3.6 children		Adult women practicing contraception with partner: 43.5 percent	
Sample years	1980, 1985, 1990, 1995, 2000		1985, 1990, 1995	
Total countries	19		18	
Total obs.	95		54	
Explan. variable (standard error)				
EFI	−0.457** (0.028)	−0.309** (0.032)	5.657** (0.782)	5.154** (0.998)
EFI*HIPRI	0.019 (0.013)		−0.258 (0.502)	
EFI*MUSLIM			−0.773** (0.084)	
EFI*CATHOLIC			0.034 (0.038)	
PRI	−0.034** (0.013)	−0.053** (0.018)	0.500* (0.238)	−0.350 (0.637)
PRI*HIEFI	0.041** (0.006)		−1.104** (0.330)	
PRI*MUSLIM			0.058 (0.034)	
PRI*CATHOLIC			0.015 (0.022)	
GDP	0.096 (0.078)	0.091 (0.070)	12.875** (2.764)	12.544** (2.743)
Std. error of regression	0.55		0.52	
Adj. R-squared	0.91		0.92	

* 5% Level of significance; ** 1% level of significance.

countries.⁶

$$Y = \beta_1 \text{EFI} + \beta_2 (\text{EFI} * \text{HIGHPRI}) + \beta_3 \text{PRI} + \beta_4 (\text{PRI} * \text{HIGHEFI}) + \beta_5 \text{GDP} + \varepsilon. \quad (1)$$

The specification of Eq. (1) is designed to reveal the net influence that economic freedom and democracy both have on each dependent variable. For example, the net influence of economic freedoms in society for those countries with relatively lower levels of democratic freedoms is revealed by the value of the coefficient estimate for β_1 , and for those countries with relatively higher levels of democratic freedoms by the summation of estimates for β_1 and β_2 . Similarly, the net influence of democratic freedoms in society for countries with relatively low levels of economic freedoms is the value of the estimate for β_3 , and for countries with relatively higher economic freedoms by the summation of estimates for β_3 and β_4 . The magnitude of the influence of both types of freedom can be compared directly because the two indexes are scaled identically. Further, assuming that the pair of coefficient estimates for each freedom type is jointly significant, the appearance of *opposing* signs would support the hypothesis that there is an opportunity cost to women's well-being for society choosing to enhance the effectiveness of one type of freedom at the expense of the other type of freedom.

Tzannatos has also found that labor force participation and other measures of women's well-being are affected by the percent of the population belonging to the dominant religions in each society that tend to restrict the socially acceptable realm of opportunities available for women in developing countries. His empirical analysis found that the two most influential religious groups were the Muslim and Catholic populations. Therefore, the specification

⁶ Berggren's (2003) survey article notes that the EFI index and real income are often positively correlated. Kennedy (1998) and others have noted that using Least Squares methods on highly correlated explanatory variables will still generate coefficient estimators that are BLUE (Best Linear Unbiased Estimator).

Table 4
Female ratio of secondary education enrollment and labor force

Dependent variable	STUDENT		LABOR	
Mean of dependent var.	Female/male ratio of secondary school students: 92.9 percent		Female/male ratio of labor force: 36.8 percent	
Sample years	1980, 1985, 1990, 1995, 2000		1980, 1985, 1990, 1995, 2000	
Total countries	34		95	
Total obs.	170		475	
Explan. variable (standard error)				
EFI	3.107** (0.514)	−1.317* (0.625)	1.302** (0.084)	0.852** (0.086)
EFI*HIPRI	−0.659* (0.329)		0.085 (0.053)	
EFI*MUSLIM	10.027** (1.141)		0.367* (0.155)	
EFI*CATHOLIC	1.431* (0.612)		0.743** (0.133)	
PRI	−0.293 (0.257)	0.295 (0.369)	−0.031 (0.042)	−0.111** (0.043)
PRI*HIEFI	−0.313** (0.101)		−0.052* (0.025)	
PRI*MUSLIM	−1.834** (0.732)		−0.003 (0.074)	
PRI*CATHOLIC	−1.364** (0.043)		0.310** (0.071)	
GDP	4.926** (1.464)	11.168** (1.464)	2.371** (0.263)	2.122** (0.216)
Std. error of regression	5.57	4.98	1.84	1.80
Adj. R-squared	0.77	0.82	0.94	0.95

* 5% Level of significance; ** 1% level of significance.

in Eq. (2) drops the freedom interaction variables from Eq. (1) in favor of adding two other interaction variables that reflect a relatively high proportion of the population in each country belonging to these two prominent world religions. Each interaction variable, MUSLIM or CATHOLIC, takes on the value of 1 if more than one-third of the country's population is of that religion and takes on a value of zero otherwise. This data is taken from [The Central Intelligence Agency \(2006\)](#).

$$Y = \beta_1 \text{ EFI} + \beta_2 (\text{EFI} * \text{MUSLIM}) + \beta_3 (\text{EFI} * \text{CATHOLIC}) + \beta_4 \text{ PRI} + \beta_5 (\text{PRI} * \text{MUSLIM}) + \beta_6 (\text{PRI} * \text{CATHOLIC}) + \beta_7 \text{ GDP} + \varepsilon. \quad (2)$$

It should be noted that no single country in the entire sample exhibits a 1 for both MUSLIM and CATHOLIC simultaneously. Also, only a few countries were high in religious populations and high in either type of freedom, prompting the removal of the freedom interaction variables used in Eq. (1). The net influence of economic freedom on women's well-being in Muslim countries can be determined by summing the coefficient estimates of β_1 and β_2 , and for Catholic countries by summing the estimates for β_1 and β_3 . Likewise, the net influence of democratic freedom is the sum of the estimates of β_4 and β_5 in Muslim countries and the sum the estimates for β_4 and β_6 for Catholic countries.

A Weighted Least Squares methodology, where the variance–covariance matrix is estimated using the assumption of cross-sectional heteroskedasticity across countries, is used for each fixed-effect regression. Each regression uses various years from the overall sample of 1980, 1985, 1990, 1995, and 2000, depending upon the available demographic data. Each regression employs a balanced data set, where the numbers of observations used for each country in the panel are equal, to assure each country has equal influence over the estimates. The country sample used for each regression equation contains all countries for which [The World Bank \(2004\)](#) has data for the dependent variable and for which an EFI and PRI value have been assigned. Missing data for various countries made it necessary to choose those sample years for each regression equation that would generate the greatest number of observations

Table 5

Net influences for relatively freer countries using Eq. (1): $Y = \beta_1 \text{EFI} + \beta_2 (\text{EFI} * \text{HIGHPRI}) + \beta_3 \text{PRI} + \beta_4 (\text{PRI} * \text{HIGHEFI}) + \beta_5 \text{GDP} + \varepsilon$

Dependent variable	Net influence of EFI (the sum of β_1 and β_2)	Net influence of PRI (the sum of β_3 and β_4)
LIFE	1.156*	0.023
LIFERATIO	-0.472*	N/A
LIT	3.862*	-0.187
LITRATIO	2.214*	-0.097
FERT	-0.438*	0.007
CONTRA	5.399*	-0.654
STUDENT	2.448*	-0.606*
LABOR	1.387	N/A

* Wald test at the 5% level indicates that the net influence is statistically different from the value of zero. Missing values (N/A) indicate that the coefficient estimates were not jointly significant for that specific regression.

Table 6

Net influences for Muslim countries using Eq. (2): $Y = \beta_1 \text{EFI} + \beta_2 (\text{EFI} * \text{MUSLIM}) + \beta_3 (\text{EFI} * \text{CATHOLIC}) + \beta_4 \text{PRI} + \beta_5 (\text{PRI} * \text{MUSLIM}) + \beta_6 (\text{PRI} * \text{CATHOLIC}) + \beta_7 \text{GDP} + \varepsilon$

Dependent variable	Net influence of EFI for Muslim countries (the sum of β_1 and β_2)	Net influence of PRI for Muslim countries (the sum of β_4 and β_5)
LIFE	3.484*	N/A
LIFERATIO	-0.059	0.020
LIT	9.965*	-0.379
LITRATIO	8.652*	-0.389
FERT	-1.082*	0.005
CONTRA	10.569*	N/A
STUDENT	8.71*	-1.539*
LABOR	1.219*	-1.108*

* Wald test at the 5% level indicates that the net influence is statistically different from the value of zero. Missing values (N/A) indicate that the coefficient estimates were not jointly significant for that specific regression.

while retaining a balanced data set. A list of countries used in each of the sixteen regression equations appears in Appendix C.

6. The empirical results

Tables 1–4 reveal the results for all of the panel data regressions that were run on the four absolute measures of women’s well-being (LIFE, LIT, FERT and CONTRA), as well as the results for the four gender equality measures of women’s well-being relative to men (LIFERATIO, LITRATIO, STUDENT and LABOR). The data reveal that the EFI and EFI*HIGHPRI variables were jointly significant and of opposite signs in six of the eight regressions, and the PRI and PRI*HIGHEFI variables were also jointly significant and of opposite signs in six of the eight regressions.⁷ Together, this implies that when each type of freedom is relatively prevalent in society, it tends to be exercised in ways that diminish the beneficial impact of the other freedom. While both types of institutional freedoms appear to exert an undesirable side effect on the other’s beneficial impact on women’s well-being, careful analysis reveals that each institutional freedom does not appear to have the same *net* influence on women’s well-being.

First, the respective impacts of EFI and PRI are examined in those countries with relatively low levels of each type of freedom and for those countries with relatively low populations of each religious group. With respect to the *absolute* measures of women’s well-being used in Eq. (1) (LIFE, LIT, CONTRA and FERT),

⁷ When the freedom interaction variables are omitted from these equations, EFI is always significant at the 5% level and exerts a beneficial impact on all dependent variables except LIFERATIO. However, PRI is often insignificant and exerts mixed impacts on the dependent variables when it is significant. Also, these results are generally insensitive to the exclusion of the income variable in the specification. These results are available from the author upon request.

Table 7

Net influences for Catholic countries using Eq. (2): $Y = \beta_1 \text{EFI} + \beta_2 (\text{EFI} * \text{MUSLIM}) + \beta_3 (\text{EFI} * \text{CATHOLIC}) + \beta_4 \text{PRI} + \beta_5 (\text{PRI} * \text{MUSLIM}) + \beta_6 (\text{PRI} * \text{CATHOLIC}) + \beta_7 \text{GDP} + \varepsilon$

Dependent variable	Net influence of EFI for Catholic countries (the sum of β_1 and β_3)	Net influence of PRI for Catholic countries (the sum of β_4 and β_6)
LIFE	1.120*	0.179*
LIFERATIO	-0.483*	0.070*
LIT	2.096*	0.066
LITRATIO	0.928*	0.015
FERT	-0.275*	N/A
CONTRA	30.97*	N/A
STUDENT	0.114*	-1.069*
LABOR	1.595*	0.199*

* Wald test at the 5% level indicates that the net influence is statistically different from the value of zero. Missing values indicate that the coefficient estimates were not *jointly significant* for that specific regression.

Tables 1–3 reveal that the coefficient estimate for EFI is statistically significant and of the proper sign for exerting a beneficial impact on all four measures. However, the coefficient estimate for PRI is significant and of the proper sign for only two of the four variables (CONTRA and FERT). With respect to the same measures of women's well-being used in Eq. (2), Tables 1–3 also reveal the coefficient estimate for EFI is again statistically significant and of the proper sign for all four measures. However, the coefficient estimate for PRI is significant and of the proper sign for only two of the four variables (LIT and FERT). Wald tests can be performed for each regression to determine whether the coefficient estimate for EFI is statistically different from the coefficient estimate for PRI at the traditional 5% level. These tests indicate that the impact of EFI is always significantly higher than the impact of PRI among those countries with relatively low levels of these two institutional freedoms, as well as among those countries with relatively low levels of Muslim or Catholic populations.

With respect to the *relative* measures of gender equality used in Eq. (1) (LIFERATIO, LITRATIO, STUDENT and LABOR), Tables 1, 2 and 4 show that the coefficient estimates for EFI is statistically significant and of the proper sign for three of the four measures, but significant and of the *wrong* sign for LIFERATIO. This latter result indicates that while economic freedom is beneficial to the absolute value of women's life expectancy (recall its positive impact on LIFE), it appears to be even more beneficial to men's life expectancy, causing the relative female-to-male ratio to decline. The coefficient estimate for PRI is significant and of the proper sign only for LITRATIO. The same type of Wald test confirms that among countries with relatively low levels of freedom, EFI has a stronger beneficial influence than PRI for three of the four measures, with PRI having a stronger beneficial influence on LIFERATIO.

With respect to the gender equality variables used in the religion interaction specification of Eq. (2), Tables 1, 2 and 4 show that the coefficient estimate for EFI is statistically significant and of the proper sign for LITRATIO and LABOR, but statistically significant and of the *wrong* sign for the afore-mentioned LIFERATIO, and for STUDENT. The coefficient estimate for PRI is significant and of the proper sign for LITRATIO but significant and of the *wrong* sign for LIFERATIO and LABOR. Wald tests confirm that for countries with relatively low levels of religious populations, EFI has a stronger beneficial influence than PRI for LITRATIO and LABOR, while PRI has a *less harmful* influence than EFI for LIFERATIO and STUDENT.

Next, the respective impacts of EFI and PRI are examined in those countries with relatively high levels of each type of freedom. Table 5 lists the net influence of EFI and PRI each on all eight dependent variables for those countries with relatively higher levels of existing freedoms. Wald tests indicate that the combined coefficient estimates for EFI generated a net influence that is significantly different from zero at the traditional 5% level for seven of these eight measures (since EFI still produces the *wrong* sign for the afore-mentioned measure LIFERATIO). The net influence of PRI generated a statistically significant net influence only for STUDENT. Again, the net influence of EFI is significantly greater than for PRI for six of these eight measures. Only the net influence of EFI on LIFERATIO was significantly *lower* than the net influence of PRI. The information from Table 5 implies that, despite the tendency for each type of freedom to exert a countervailing impact on the other freedom's influence, EFI still appears to exert a stronger

beneficial net impact than PRI on all of the absolute measures of women's well-being and on twice as many gender equality measures.

For those countries with relatively high Muslim populations, Table 6 lists the values derived from Eq. (2) for the net influence that EFI and PRI have on all eight measures of women's well-being. Economic freedom generated a *net* influence significantly different from zero for seven of the eight measures, while democratic freedoms generated a significant influence for only two measures (STUDENT and LABOR). The results indicate that EFI has a net beneficial influence that is significantly greater than PRI for seven of the eight measures, while the regression for LIFERATIO failed to generate a significant net influence for either EFI or PRI. The information from Table 6 implies that among Muslim countries, EFI appears to exert a stronger net beneficial impact than PRI on all absolute measures of women's well-being and on three-fourths of the gender equality measures.⁸

For those countries with relatively high Catholic populations, Table 7 lists the values derived from Eq. (2) for the net influence that EFI and PRI have on all eight measures of women's well-being. Wald tests reveal that EFI generated a significant net influence for seven of the eight measures (with the influence again producing the *wrong* sign again for LIFERATIO), and PRI generated a significant influence for four of the eight measures. The net beneficial influence of EFI is significantly greater than for PRI for seven of the eight measures. Table 7 implies that among Catholic countries, EFI appears to exert a stronger net edifying impact than PRI on all of the absolute measures of women's well-being and on three-fourths of the gender equality measures.

7. Conclusion

Commonly employed country indexes reflecting the level of economic freedoms exercised in the marketplace and the level of political rights exercised in a democracy are each used in a fixed-effects panel data analysis for explaining variation in women's well-being and gender equality in society. Data from as many as 95 countries and from up to 5 years of data spanning the two decades of the 1980s and 1990s were used to estimate the net impact that each type of freedom has on four absolute measures of women's well-being (life expectancy, literacy rate, fertility and contraception use by women) and four relative gender equality measures (female to male ratios of life expectancy rates, literacy rates, secondary education enrollment and labor force participation). Two different specifications were used: one accounting for the possible interaction of each type of freedom to affect the other's impact on these measures of women's well-being, and the other allowing for the interaction of each freedom type with the presence of relatively high populations of two different religious groups (Muslim and Catholic religions). The empirical results indicate that the level of economic freedom always exerts a stronger beneficial net influence relative to democracy for all four absolute values of women's well-being used in this analysis and more often exerts a stronger beneficial net influence on the four relative gender equality measures.

Setting aside the *intrinsic* benefits that both types of freedoms provide for all individuals in society, the tangible measures of women's well-being in society could theoretically be maximized by adopting the proper mix of institutions that yields the highest net positive impact. Many Neoclassical development paradigms in the economics literature assume that the institution of democracy is more effective than the institution of capitalism at improving the non-monetary qualities of life for women in society, via the provision of beneficial public services and equitable social policy. However, many Public Choice paradigms are critical of claims that democracy is generally effective at creating efficient public policy that benefits any broad subset of society, favoring the protection of market institutions to promote the welfare of all in society, including women.

The statistical evidence herein implies that those societies that rely more heavily upon individual economic freedoms to promote women's well-being have been more successful than those societies relying more heavily upon greater political rights. It appears that for those democratic societies with relatively higher existing levels of economic freedoms, or a relatively high presence of Muslim or Catholic populations, the citizens appear to have exploited their greater political rights to pursue political and economic objectives that have ultimately benefited women less than men. The policy implications of this empirical analysis indicate that if a country's government chooses to permit a greater

⁸ While there appears to be sufficient variation in economic freedom among the Muslim countries (such as Turkey versus Algeria) to determine the net influence of EFI, there may be insufficient variation in political rights to generate consistently statistically significant estimates for the net influence of PRI. However, all religious interaction variables were retained in the specification because their *interaction* is an important focus of the analysis. Thus, the empirical results for PRI among Muslim countries should be interpreted accordingly.

expression of political rights to its citizens by increasing the efficacy of democratic policies in society rather than promote a greater expression of individual economic freedoms to be exercised in the marketplace, such a policy choice will likely produce *smaller* improvements in the quality of life for women in that country.

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Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at [doi:10.1016/j.jebo.2007.08.005](https://doi.org/10.1016/j.jebo.2007.08.005).

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