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Yen Doan April 9th, 2017

Exploring the Connection between Neoliberalism and Reproductive Health:
An Empirical Analysis
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Abstract
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In the past few decades, neoliberalism has become a catch-all term that is defined by a loose set of policies. Although deemed antiquated by many present scholars, the effects of neoliberal policies within low- and middle-income countries still influence large aspects of individual lives, one of which is population health. This study aims to explore the relationship between neoliberalism and reproductive health within low- and middle-income countries. First, this study aimed to confirm that neoliberalism does affect both national levels of reproductive health and inequality levels of reproductive health within a country. Then, this study proposes four pathways in which this effect between neoliberalism and reproductive health could be occurring: the country's economic state, the amount of official development assistance, the government's health expenditures, and the nation's level of income inequality. A cross-national data analysis was conducted across 65 countries in order to verify these relationships. The results indicate that neoliberalism is associated with decreasing maternal mortality rate, and GDP per capita is a potential pathway in which this effect may be occurring. However, the study also suggests that neoliberalism is associated with increasing inequalities in stillbirths. Therefore, despite the association between neoliberalism and improvements in reproductive health outcome on a national level, neoliberalism is also associated with the exacerbation of inequalities within a society. Through the results of this study, it is clear that neoliberalism continues to affect population health, especially in low- and middle-income countries. Research must continue in order to further understand the specific ways in ways neoliberalism affects population health in order to shape public policy.

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Introduction

Although the theory of neoliberalism was originally introduced post-WWI by Friedrich Hayek and Milton Friedman in an effort to revive classical liberalism, it has since evolved into a set of loosely defined policies with a hegemonic global presence, affecting practically every aspect of life (Steger and Roy 2010). During the 1980s, the neoliberal agenda was brought into the international spotlight through the introduction of Reganomics, in the United States, and Thatcherism, its United Kingdom counterpart (Brenner and Theodore 2002). Following its rise in these two countries, the late 1980's and 1990's were marked by the gradual adoption of neoliberalism worldwide. The versatile nature of neoliberal policies appealed to world leaders, from countries in South America to the former Soviet Union (Steger and Roy 2010). Today, neoliberalism has evolved into an opaque catch-all term for policies that benefit the wealthy and disadvantage the working class and the poor (Ferguson 2009). Since the 1980's, hundreds of scholarly publications have attempted to define and document the elusive "neoliberalism" and its effects across a wide variety of societies and nation-states.

In reviewing the existing literature available, I will attempt to define neoliberalism, both in theory and in practice. This review will also focus on how its policies and ideologies have affected the outcomes of population health, specifically on women and on reproductive health. I will also highlight the significance of structural adjustment programs and its relation to neoliberalism and population health, in an attempt to justify the notion that neoliberalism has a contemporary relevance that warrants continued research and investigation.

Literature Review

A Brief Background

Following the prosperous golden years of egalitarian Keynesian policy, the economic turmoil of the 1970's created a perfect environment for economic reform, which came in the form of neoliberalism. In theory, the neoliberal idea is monolithic and idealistic. In practice, neoliberalism is versatile and easily manipulated, according to context. For example, even Reganomics and Thatcherism were not identical. As a wider range of nations adopted neoliberal policies, the diversity of economic structures and political objectives that neoliberalism encountered grew. Free markets and free trade are the universal tenets, but how these tenets are interpreted and implemented is where the divergence becomes clear. It is difficult to deny that the adoption of neoliberalism across the world within the past few decades have had and will continue to have lasting economic, political, and social ramifications.

Neoliberalism's complexity is best understood if it is broken down into three separate, but interwoven, parts: the ideology, the form of government, and the policies implemented. The ideology of neoliberalism boasts a free-market world where competition drives productivity and efficiency. Although only a concept, it paints an image of the free flow of goods, services, and prosperity. In terms of type of governance, neoliberalism calls for small government and a self-regulating market, free from political influences on the economy. It calls for bureaucrats to be transformed into entrepreneurs, and citizens to become clients. Finally, according to Steger and Roye, the public policies that come with neoliberalism follows the D-L-P model, known as deregulation, liberalization, and privatization (2010). This has major implications for public services, the labor force, and welfare programs. It is from these public policies, shaped by neoliberalism, that most impacts the daily lives of citizens.

The effects of economic and political level neoliberalism have trickled down to the individual level. The infrastructure and culture of each world region, each country, is unique, making the effects of the adoption of neoliberal policies dynamic, and in many ways, unpredictable. When such policies are adopted, they tend to disadvantage the working class (Navarro 2007). When neoliberalism deregulates labor markets and financial markets, the economy is stacked against the working class and benefits financial capital. For example, the deregulation of commerce does not protect laborers who depend on production of goods and services for their livelihood. Additionally, public expenditures are reduced and replaced with privatized services that mainly benefit the top 20 percent of the population, all of whom would profit from the private services at the expense of the bottom 20 percent who are most likely to use the public services. This phenomenon can be observed in healthcare, where reduction of welfare is coupled with an increase in privatized healthcare services (Navarro 2007).

In an environment where competition is emphasized and citizens are encouraged to embrace individualism, the solidarity of the community becomes compromised. The model citizen is a consumer and an entrepreneur in every aspect of their life, from their education and career to their health (Navarro 2007). Social cohesion is the degree to which different groups in a community feel connected to each other. Neoliberalism threatens the social wellbeing of a community by threatening its social cohesion. Social cohesion hinges on two factors. The first is the absence of latent social conflicts between different groups such as racial/ethnic groups, economic classes, and political affiliation. Under neoliberalism, these social divides are exacerbated, especially along lines of class and income distribution. Secondly, social cohesion depends on social bonds between these groups determined by trust and norms of reciprocity that bridge potential divisions (Kawachi and Berkman 2000). Neoliberalism's culture of prioritizing

the self does nothing to alleviate this societal mistrust. This creates a prolonged hostile environment where every person is expected to fend for themselves, and the repercussions of such an environment over a prolonged period of time begins to impact the wellbeing of the population, itself.

Neoliberalism as a Social Determinant of Health

The revolution in biotechnology introduced vaccinations and antibiotics into the world and saved millions of lives, forever changing how people approached health and disease. Concurrently, literature arose proposing that it was not biomedicine that drastically improved the health of the general population, but rather the social conditions upon which people lived. McKeown's work in historical epidemiology showed that factors such as improved hygiene, sewage systems, and water sources improved population health before the discovery and usage of antibiotics (1978). The consistent validation of this phenomenon that infectious diseases can be dramatically reduced without the development of medicine prompted the exploration and development of public health. Health was no longer considered to be solely contingent upon individual level risk factors. Health became a social science, and social scientists began considering how larger structural and institutional factors played a role in population health.

According the Centers for Disease Control and Prevention, social determinants are defined as, "the conditions in the places where people live, learn, work, and play [that] affect a wide range of health risks and outcomes" ("Social Determinants of Health: Know What Affects Health", 2017). The term grew from individual level determinants, such as social economic status and race, to macro level political and economic determinants. The idea that public policy implemented by the government of a nation can directly and indirectly determine its citizens'

quality of health helped explain why there were such significant differences in health trends across different populations and even within them. Fluctuations in national levels of GDP, economic growth, allotted government expenditures, and even the form of government is correlated with population health and disparities in health (Navarro 2007). In order to understand the reasons behind such variance in quality of health, the reasons behind the social context of that population must be understood.

Neoliberalism's extensive impact inevitably affects the social context of a nation's sense of community. As neoliberalism became the most dominant politico-economic model since the turn of the 21st century, exploring the potential connection between how neoliberalism, social quality, and, as a result, the health of a population is worth noting. A combination of the degree to which the nation has adopted neoliberal policies and the preexisting economic and political infrastructure creates different social environments, therefore affecting the quality of population health differently. It is also important to recognize that the factors affecting population health are intricate and multifaceted: neoliberalism is far from comprehensive enough to explain all the variation found in population health.

The general emphasis on minimizing the welfare state, a system of government that takes responsibility for the welfare of its individual citizens, and increasing the privatization of traditionally state institutions, such as healthcare, are two obvious aspects of how neoliberalism could directly affect the quality of health, because it theoretically places limitations on individual access. This, alone, makes neoliberalism and its corresponding policies a possible social determinant of health. This is not to say, however, that the connection between neoliberalism and population health is simple or obvious. In fact, superficial data analyses exploring the direct link between neoliberalism and population health often concludes with no significant correlation

(Tracy 2013). Deeper analysis, however, of potential moderators connecting the multi-faceted aspects of neoliberalism to population health could reveal a more interesting relationship.

Privatization of Healthcare

Downsizing government is one of the hallmarks of neoliberalism. Ironically, studies working with data from countries within the Organization for Economic Cooperation and Development (OECD), which exclusively consists of high-income countries, concludes that there has actually been an increase in government intervention and government expenditures as nations commit to neoliberal policies (Navarro 2007). Priorities have simply shifted to advantage the upper class (Navarro 2007). However, this does not stop the increased privatization of traditionally state-run organizations and functions. Services typically funded by the government such as public transportation, education, and healthcare are privatized and handed over to corporations for profit.

This shift in the structure of healthcare affects how both healthcare workers and patients approach the healthcare system and their own health. The neoliberal ideology asserts that market forces will keep the cost of healthcare down while saving money on expanding coverage (Maskovsky 2000). In reality, this process reduces the access of healthcare services only to those who can afford it, demarcating an in and out group (Coburn 2000). Private healthcare becomes normative and public healthcare becomes a second-rate option for those who cannot afford the best quality of care (Connell 2010). In the specific case of Poland, which serves as a contemporary example of the transition to neoliberal policies from a communist government, the healthcare system became decentralized when the government withdrew its responsibility. Major healthcare subsidies were cut. As a result, healthcare workers fled to the private sector,

significantly reducing the quality of care available to those whose only option would be public healthcare (Mishtal 2010).

This transition to private healthcare is masked behind rhetoric of "freeing the healthcare market" and "giving patients the right to choose their own healthcare". In reality, it perpetuates the agenda of neoliberal policy by reinstating that health is now the responsibility of the individual and no longer the obligation of professional experts nor, by extension, the state. Healthcare is viewed as a corporation where its success and efficiency are spoken of in terms of cost-containment, for-profit, and management. (Maskovsky 2000). Patients, regardless of their level of knowledge or resources, become consumers and assumed experts in their needs and how to attain these needs through the market. Healthcare is no longer a service but a business, and citizens are treated as customers. The trap of empowerment hands the responsibility to the patient/consumer, leading the blame of any failures to be placed on the individual rather than the existing and severely lacking infrastructure of consumerism (Maskovsky 2000).

Welfare and Population Health

Under neoliberal ideology, welfare reform is vilified for creating an environment that encourages dependency on the state instead of creating autonomous individuals (Kingfisher 2001). It is considered to be a hindrance to the nation's international competitiveness and progress. In the early 20th century, eventually climaxing during the 1960's and 1970's, the American welfare state was organized to ensure that people had a minimum income regardless of their market value and to standardize the social services available to all citizens regardless of class or social status (MacGregor 2005). When the welfare state was "cut" under neoliberalism,

income inequalities within a nation increased (Navarro 2007). Social hierarchies were further reinstated and more starkly visible than before.

On the surface, it appears that the "revocation" of welfare along with implementation of neoliberal policies is correlated with increased economic growth. However, exploring the income distribution within a country reveals that this economic growth does not apply to everyone within the population. For example, over a decade after the adoption of neoliberal policies, the United Kingdom experienced an overall thirty-six percent increase in economic income, however the bottom ten percent of their population's income decreased by seventeen (MacGregor 2005). It has been argued that this increasing income inequality plays a prominent role in the overall health and wellbeing of a population, when looking at particular health indicators such as life expectancy and mortality rates (Wilkinson 1992).

It is important to consider that discussing income inequality, often involves but, does not necessitate poverty. It is not the absolute material standards, but relative wealth within a society that matters (Wilkinson 1997). Although there is no doubt that income inequality was prominent in societies before the adoption of neoliberal policies, the tenets of neoliberalism exacerbated the existing rift between the classes and statuses in society, because now economic inequality, at least within rich countries, is determined by the economic policies that shape it (Jencks 2002).

There are many scholars who argue that there was not a significant decrease in welfare when neoliberal policies called for its cutback (Hartman 2008; MacGregor 2005). In fact, the welfare state holds the fabric of society together, and its elimination would be impossible for the success of wealthy countries. Instead, the welfare state was restructured by changing the rhetoric of who does or does not deserve welfare (Hartman 2008). When neoliberal industries shifted from manufacturing to services, welfare dispersion rationale also shifted from a charitable

mentality to an obligatory mentality. Beneficiaries of welfare became stigmatized and stereotyped as lazy dependents who take advantage of the system. This effectively pushes welfare recipients out into the fringes of society, while providing them with the minimum of income in order to create a façade of their integration into normal society (Hartman 2005).

This current belief that the presence of a strong welfare state hinders economic growth prevents rising middle- and low-income countries from pursuing a welfare state, especially with additional pressure from international organizations such as the World Bank and International Monetary Fund (IMF) (MacGregor 2005). Without the presence of welfare states to remedy increasing income gaps, there is a sharp rise in relative poverty in addition to income inequality. When it comes to the welfare state under neoliberalism, theoretical policy and rhetoric are drastically different from actual practice. Dramatic "roll backs" of the welfare state and state government was selective and intentional, designed to shift social control from the poor and redirect government expenditures away from the welfare state. Therefore, the presence of neoliberalism and the welfare state, especially in higher income countries, are not necessarily mutually exclusive or uniform across different societies.

Income Inequality and Population Health

While many researchers are exploring the extent to which neoliberal-specific economic policies can intensify the disparities of income inequality, other social scientists are also studying the relationship between income levels and population health. This pattern has been widely regarded through data analyses and theoretical models confirming that population health is correlated with social hierarchy and income level (Evans 1994). As mentioned previously,

neoliberalism creates institutions and societies that perpetuate and worsens the gap between those on the top and the bottom of the social hierarchy.

Although apparent trends indicate that "developing" countries tend to have better overall health as their gross national product (GNP) and absolute material wealth increases, this pattern is not infinitely linear. Once a nation exceeds a certain GNP per capita threshold, the greatest indicator for health is income inequality, the measure for relative wealth (Wilkinson, 1992). This pattern can be further examined when one considers OECD nations where GNP per capita are all consistently above the threshold. Poorer people in such countries may have between two to four times higher death rates than the richer people of the same society (Wilkinson 1997). The smaller the gap between the richest and poorest, the higher the life expectancy in that particular nation.

Although it was widely recognized that the rich have better health than the poor, it was Marmot's Whitehall Study, in 1991, that revealed just how prevalent the correlation was between health and status. In a longitudinal study spanning almost two decades, he followed more than ten thousand British civil servants across a hierarchy of income and rank. Although this sample of men and women experienced no deprivation of material needs, there was a clear gradient that individuals in higher-ranking positions were less likely to die, from a wide range of causes, than those who worked in lower and lower positions (Evans, 1994). This study, amongst many others that followed, indicated that an underlying cause associated with hierarchy is influencing the quality of the health of the population. This causality is still highly speculated amongst scholars today, and the two most predominating theories is the neo-materialist hypothesis and the social hypothesis.

Income Inequality: The Neo-Materialist Hypothesis

The neo-material hypothesis argues that poor population health results from differential access to resources that are ultimately grounded in the material world. These materials include healthcare, education, food availability, housing availability, etc. The availability of these resources are dependent upon the existing infrastructure and how much that society has invested in its quality and availability. This infrastructure is contingent upon the political-economic processes implemented in that society. In many countries, such as the United States, income inequality is associated with unemployment, social welfare, and medical and educational expenditures (Lynch et. al 2000). The neo-materialist hypothesis looks at these macro level policy-based changes that can be made to improve public health.

Navarro's work, specifically with OECD nations, supports the neo-material hypothesis. He divides the twenty-three OECD nations into four categories: social democratic, Christian democratic, liberal, and ex-fascist, based on their political structure. Nations in Northern European, such as Denmark, Sweden, and Norway, are regarded as the social democratic nations with high commitments to redistributive policies and welfare. Liberal nations would be the United States, United Kingdom, and Canada, where the economy is mostly market-oriented. These liberal countries, where the markets reign supreme, had the highest inequality, while the more labor-based social democratic countries have lower income inequalities (Navarro 2001). On average, social democratic countries also experienced lower unemployment than liberal countries since 1970. Social democratic nations have higher expenditures on health and social security and lower levels of poverty. Following this trend, their rates of infant immortality are the lowest of all the groups, while liberal nations are the highest, indicating a connection

between income inequality, government expenditures, and the health and quality of the population.

Navarro further examined the relations between political tradition and health within OECD nations across time using a bivariate analysis of variables for power relations, labor markets, welfare state policies, and economic inequality. He divided the nations into the same four categories as mentioned above, and it was concluded that there was a clear negative correlation between years of pro-redistributive government and reduced infant mortality. Therefore, a "social democratic" government isn't enough, but it is the effect of cumulative years of this form of government and policies that improved population health (Navarro et al. 2006).

In contrast, longer and slower adoption of neoliberal policies caused relatively less detrimental effects on a country's economic stability, poverty, and inequality when compared to countries who applied the "shock doctrine". This phenomenon famously occurred across Latin America starting in the 1990's. Even as the overall economy of the respective nation grew following the reform, the benefits did not trickle down and reduce the levels of poverty but, in fact, made them worse (Huber and Solt, 2004).

Although Navarro alluded to the impact of politico-economic structure on population health throughout his work, it was in his most recent research that he explicitly discussed neoliberalism as one of these politico-economic forces (Navarro 2007). Clearly distinguishing the difference between neoliberalism in theory and neoliberalism in practice, he argues that neoliberalism plays a role in determining income inequality. It is through this pathway of income inequality that leads to increasing health inequality and poor population health.

Income Inequality: The Psychosocial/Social Capital Theory

The social capital hypothesis, argues that decreasing social trust and sense of community is the associating factor between income inequality and population health. Social capital is generally defined as the culmination of the social networks and human relations available to an individual in their society in order to achieve their interests (Coleman 1988). Increase in gaps between the rich and the poor creates a hostile society where it is not necessarily material standards but relative deprivation that is associated with poor health (Wilkinson 1992). Where an individual believes they stand, status-wise, in relation to their neighbors and their community has profound effects on their sense of self-esteem, sense of social exclusion, and vulnerability to social stressors (Wilkinson 1997).

Ichiro Kawachi explicitly set out to test this relationship in an empirical study based on data from the United States. Using data collected by the General Social Survey as an indicator for the level of social capital in the society, Kawachi quantified the responses into four separate indicators: group membership, perceived lack of fairness, social mistrust, and perceived lack of helpfulness. Income inequality was measured using the Robin Hood Index, which is the proportion of a society's total income that would need to be redistributed for perfect income equality. The relationship between income inequality and the social capital indicators were analyzed, and then the relationship between the four chosen social capital indicators and other health outcomes were analyzed. There was an inverse relationship between income inequality and social trust, and the relationship between social trust and the mortality rate was positive. There were also similar correlations between social trust and rates of infant mortality, cerebrovascular disease, and heart disease (Kawachi 1997). This analysis was one of the first to

quantitatively illustrate the very serious implications that the social environment can have on the health of an entire population.

An abundance of studies has shown that psychosocial factors produce very real physiological processes detrimental to individual level health. The prevalence of a social hierarchy is an important component of the psychosocial environment. Similar to the effect seen from those living under the oppression of racism, status disparity induces chronic stress that increases cortisol levels, suppresses the immune system, and leads to increased risks of cardiovascular diseases (Wilkinson 1997). This effect can also be observed in non-human primates with a hierarchal community. Subordinate animals towards the bottom of the ladder are more reactive, experience higher levels of depression, and are found to be in a constant low-level state of anxiety as opposed to their dominant counterparts (Evans 1994).

Over a decade has passed since these ideas were initially proposed, and contemporary literature is still parsing out the details of this relationship between income inequality and population health in an increasingly complicated and rapidly changing world. The verdict is still under hot debate, and there is still strong support for both theories. For example, Frank Elgar's tested these two hypotheses against each other by examining the correlation of income inequality in thirty-three, high-income countries against various population health indicators (life expectancy, mortality rates, etc.) and indicators for both social cohesion and government health expenditures to test for potential moderators (2010). There was a significant correlation between social trust and the health indicators, and no correlation between government health expenditures and the heath indicators. It was concluded that social cohesion and support was more important to increased life expectancy and decreased mortality rates (Elgar 2010). On the contrary, another study addressing the debate between the two theories concluded that the neo-materialist theory

provides a more comprehensive explanation for income inequality. It also provides a more practical approach for relieving health inequalities through public policy and public health measures (Lynch et al. 2000).

The current and ongoing discussion only affirms that these two hypotheses are not mutually exclusive. It remains essential to consider both, when attempting to explain the connection between income inequality and population health, even if one may appear to be more dominant or more practical than the other at times.

It has been generally accepted that income inequality is one of the greatest predictors for population health within the developed world (Wilkinson 1992). In a comprehensive literature review conducted that included 155 peer-review reports, seventy percent verified a connection between income inequality and population health (Wilkinson and Pickett 2006). However, it is also important to note that this relationship between income inequality and population health is not necessarily generalizable to low- and middle-income countries, and most of the studies mentioned previously only included high-income countries. Within low- and middle-income countries, the absolute income levels, such as GNP per capita, were a better predictor of population health (Wilkinson 1992). Therefore, population health within these countries are still largely dictated by poverty levels, absolute poverty, as opposed to the relative poverty as described within high-income countries.

Although the studies mentioned above provided much needed attention to the consideration of income inequality as a social determinant of health in high-income countries, there are a severe lack of studies addressing whether this association is as strong in the rest of the world. Since neoliberalism is associated with increasing income inequality, this lack of evidence in connection between income inequality and population health raises some doubts. Specifically,

this questions the generalizability of the proposed effects of neoliberalism on population health if it is applied universally, and whether income inequality would still be a pathway in which this effect travels.

Vulnerable Population

Neoliberalism notoriously benefited the wealthy and disadvantages the poor. However, a gendered analysis of the effects of neoliberalism reveals significant difference in its impact between men and women as well. Before second-wave feminism in the early 1960s-70s, women and men were traditionally restricted to their own private and public spheres, respectively. Women were responsible for domestic obligations and childcare, and men dominated the labored public sphere. Neoliberalism challenged this notion by blurring the line between the public and private spheres (Armstrong 2010). Ideally, every individual, regardless of gender, has an equal opportunity to raise themselves up through work and contributions to the economy within the public sphere. Neoliberalism claimed that it works to de-gender citizens and define individuals by their employability. In its attempts to de-gender women by pressuring them into the labor force as equals. However, neoliberalism also re-genders women by casting them as welfare dependents who especially need of empowerment, in an effort to further its own agenda.

In this process of integrating women into the labor force, neoliberalism simultaneously disqualifies childrearing and domestic work as "real work", because it does not directly benefit the economy. Neoliberalism increases the burden for women by expecting them to be individual entrepreneurs in the public sphere while also maintain their caretaker role in the private sphere without fair compensation or acknowledgement (Kingfisher 2001). Their social citizenship is based on the same principles as a man's, who does not have the same traditional caretaking

obligations at home. As a result, women do not truly enter the public sphere as "equal individuals" with "equal opportunity", and because these women do not fulfill their requirement as a productive member of society in the public sphere, their citizenship is questioned. Women who are not prominent in the public sphere, for example stay-at home mothers, are even further disqualified from being a "successful and productive member of society".

Under neoliberalism, women are encouraged to be independent citizens, to be a potential resource for the economy. The market does not acknowledge the difference in power dynamics and financial distribution across race, gender, and class. It disregards the context from which women are entering the public sphere. Privilege and status are required for women to achieve success in the labor force, including access to financial resources and education. Less qualified, low-income women are subject to overcoming additional obstacles to reach this same level of success as their more privileged counterparts (Schunter-Kleemann & Plehwe 2007).

The reorganization of welfare and increased privatization of services most drastically affects poor single mothers, because they make up a large portion of welfare beneficiaries. A retreating state leaves single mothers and poor women most vulnerable to poverty. In addition, this subset of the population is routinely stereotyped by the government and supporters of neoliberalism as "welfare queens" who are taking advantage of government aid and are dependent on the welfare system (Cruikshank 1999). They are often listed as one more reason for the aggressive implementation of neoliberal policies.

When austerity measures are taken by the government, women and mothers are left with decreasing access to health, education, and employment opportunities. One could argue that these cutbacks from neoliberal policies are a direct and gendered attack against women (Kingfisher 2001). They devalue childrearing and its contribution to society, while

simultaneously expecting women to contribute equally to the economy as their male counterparts. Women have been constantly scapegoated for alleged welfare frauds and used as an example of the importance of emphasizing neoliberal policies. It claims that redirecting welfare relieve poor women from their dangerous dependence on the state for their livelihood. However, there is no new supporting infrastructure to replace the previous welfare state that will confront the challenges women face, increasing the likelihood that women, especially single mothers, will continue falling into poverty.

Consumerism Takes Over Women's Health

While it is simultaneously de-gendering and re-gendering women, neoliberalism is taking over the structure of the healthcare system and women's reproductive healthcare system. It also compromises and shifts the way in which women approach and view their own health and their own bodies. For example, increased privatization of U.S. healthcare has increased the stratification of access to reproductive options, also known as "stratified reproduction" (Craven 2007). The usage of certain healthcare services is delineated based on income level, because not everyone has equal access or affordability to all services. "Choice" in healthcare comes with hidden ultimatums and conditions with different meaning for different people. Essentially, the state only guarantees the right "to choose" for a specific subsect of women who have the education, resources, and information necessary to make this informed decision.

Midwifery in the United States provides an illustration of how women's attitude towards reproductive health options is affected by neoliberalism and consumerism. In an ethnography exploring midwifery in Virginia, it was generally found that women with a reported annual income level above $50,000 would cite their choice in midwifery as empowering. They often

self-identified themselves to be "consumers" and claimed that it was more dignified than the term "patient" with its more paternalistic connotations. They believed in the free market, and they believed in the responsibility of the consumer to educate themselves and make the right choice based on their own personal needs (Craven 2007). In contrast, women who fell below the poverty line cited their choice in midwifery for child-birth because of its low cost. There was little to no discussion about empowerment or the right to choose, in the way the women with income levels above $50,000 would discuss the reason behind their choice (Craven 2007).

Based on the neoliberal ideology that is in place, there is a striking difference in the way these different groups of women utilized the healthcare system to their advantage depending on their income level. Their attitudes and sense of empowerment differed drastically based simply on their status in society. Although it is not universally applicable, the findings of this ethnography has major implications for how far reaching an increasingly neoliberal, consumerist, and individualistic society can go in shaping how women approach their own health. This also changes how they tackle the enormous responsibility of making their own, often uninformed, decisions, which will inevitably affect the quality of women's health.

Women's Population Health

While these income distribution and population health models continue to be under heavy debate, there has been a significant lack of studies questioning whether these neoliberal models hold true, specifically for women's health. In fact, women are consistently hidden or missing in quantitative studies. Existing population health studies cannot be used to generalize about women's health. Not only are women physiologically different from men in terms of need and care, but the determinants of health and the social obstacles women face regarding healthcare

services are also different from men (Manderson 1999). Yet, this difference has been overlooked, taken for granted, or largely ignored in population health studies (Kaufert 1999). It is not enough to place women's health under the umbrella studies of general population health, which Kaufert argues, primarily addresses the health conditions largely affecting men (1999).

When a phenomenon as expansive and intrusive as neoliberalism dominates the everyday experience of women, it should be studied and explored to the same depth as how neoliberalism has affected general population health. Unfortunately, the large scale direct effects of neoliberalism, the welfare state, and labor policy on women's health has been speculative largely, because the only information available is from the limited ethnographies available. Due to the lack of data driven population health studies focusing exclusively on women's health, the quality of quantitative data must improve before there can be hope for changing policies to eliminate barriers, increase access, and improve women's reproductive health.

Neoliberalism versus Structural Adjustment

It is important to note that most of the literature that has been discussed up until this point involved high-income, OECD countries. The circumstances in which neoliberal ideologies were implemented around the rest of the world were vastly different, and implications of these difference will help us better understand the global effects of neoliberalism. Beginning in the 1950's, financial assistance organizations such as the IMF and the World Bank provided loans to low- and middle-income countries that were experiencing economic crisis. These loans came with a conditionality clause, where the countries must implement certain policies that were initially aimed at improving internal infrastructure, such as building roads and dams (Dollar and Svensson 2000). During the 1980s, following the supposed success of Reagnomics and

Thatcherism in the West, the conditionality clauses within these structural adjustment programs transitioned from investing in structural projects to promoting policy reform (Dollar and Svensson 2000). Subsequently, low- and middle-income countries were forced to adopt structural adjustment policies designed with the intention of improving economic growth and development within the countries that seem to need it most.

The framework of these policy bundles were largely inspired by neoliberal ideology. For example, their goals included privatizing traditionally state-owned enterprises and stabilizing fiscal and monetary rates. It forced economic deregulation of the free market and the liberalization of the economy by increasing foreign trade (Kentikelenis 2017). Essentially, the main tenets of neoliberalism were renamed and repackaged. These policies gained mainstream support by claiming that, "A nation that opens its economy and keeps government's role to a minimum invariably experiences more rapid economic growth and rising incomes" (Wade 2010, citing New York Times 2002).

These plans largely resulted in social and economic disasters, with studies failing to directly link the adoption of neoliberal policies with any economic growth (Harvey 2005). Structural adjustment policies developed from neoliberal ideologies were not "magic bullets" that accelerated economic growth. Rather, empirical studies examining cross-national data shows that economic improvement is not dependent on preceding reforms but occurs spontaneously (Wade 2010, citing Hausmann et al. 2005). Additionally, Wade's empirical assessment of state mobility between 1978 to 2000, dividing countries into four income categories, showed that the majority of the states, particularly low-income states, remained in the same income category over the two decades (2010).

Successful reform is dependent on the political economic factors within that country (Dollar and Svensson 2000). Commonly referred to as "the shock doctrine" the rapid implementation of neoliberalism in Latin America and Africa faced many criticisms (Klein 2007; Dollar and Svensson 2000). This top-down approach of structural adjustment extracted a model from high-income countries and superimposed it on low- and middle-income countries where the political economic factors are drastically different. Most low- and middle-income countries did not have the infrastructure and stability from within their own government to adopt and implement these programs (Ferguson 2009). Eventually, the IMF and World Bank rescinded these policies, and they were replaced with "poverty reduction and growth" loans that supposedly target marginalized and poorer populations more (Kentikelenis 2017). However, the effects of the structural adjustment policies adopted before the turn of the millennium are still prevalent today.

The policies developed for structural adjustment programs were based on neoliberal assumptions and values, therefore, the expected effects of structural adjustment on population health should also be similar to neoliberalism's effect on population health. Kentikelenis confirms this through a comprehensive review of existing literature regarding structural adjustment, proposing three mechanisms in which structural adjustment affects population health: directly, indirectly, and through affecting the social determinants of health (2017). Direct effects include policies that encourage reduction in public health expenditure, increased privatization of the healthcare system, and decentralization of healthcare. Indirect pathways in would involve indirect effects resulting from liberalization, stabilization, and privatization policies. For example, liberalization of the economy includes the removal of tariffs and trade tax. This makes a country more vulnerable to global economic instabilities, which can shape how a

country chooses and to develop and finance its health systems. Macroeconomic and institutional reforms, in turn, affects population health and the social determinants of health by increasing unemployment, poverty, and inequality (Kentikelenis 2017).

Present Study

The review above highlights a potential link between neoliberalism and health, especially women's health. The existing literature suggests that neoliberalism might impact women's health through the following pathways: gross domestic product, government health expenditures, official development assistance, and income inequality. Gross domestic product and official development assistance are expected to increase under neoliberalism, improving health outcomes. In contrast, health expenditures decrease and income inequality increases under neoliberalism. Neoliberalism is expected to negatively impact population health through these pathways. These four moderators, which have been proposed for high-income countries, will be tested against the dataset of my study, which consists of middle- and low-income countries.

My study contributes to the growing literature exploring the effects of neoliberalism on health outcomes and health inequality. Through the use of publically available data from the United States Agency for International Development (USAID), a cross-national data analysis was conducted in an effort to test whether significant relationships between neoliberalism and reproductive health exist and whether these relationships occur through the pathways mentioned above. The results of this study will indicate whether the currently proposed mechanisms in which neoliberalism affects population health applies to non-developed countries, providing important implications for the future of public policies within these countries.

Proposed Models

In order to test whether and how neoliberalism is related to reproductive health outcomes, I propose the following model:

Figure 1. Model A proposes that a direct connection exists between neoliberalism and various reproductive health outcomes through Pathway I.

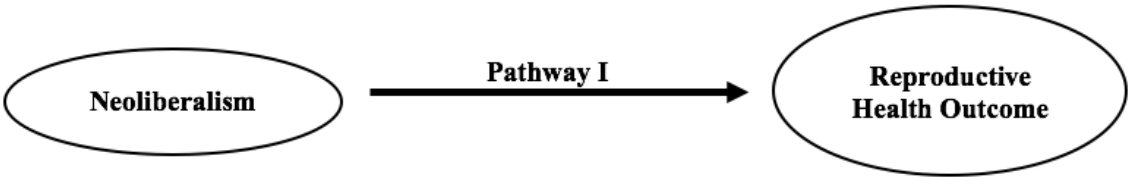


Figure 2. Model B, below, is an elaboration on Model A, proposing various pathways in which neoliberalism is connected to reproductive health outcomes.

Methods

There was a total of 65 countries included in the data set of this study. All countries were classified as either low- or middle-income countries by the World Bank. In an effort to include as many countries as possible within this analysis, the 65 countries were determined based on data availability of the six reproductive health outcomes on the USAID database. Based on the models proposed above, the data analysis of this study will include three different variables: neoliberalism, the potential moderators, and the reproductive health outcomes, which will be detailed below.

Measuring Neoliberalism

Two different indexes were used to numerically quantify neoliberalism. The first index is developed by The Heritage Foundation, which calculates an annual overall score measuring the economic freedom of 178 countries, many with data starting form 1990-2016. The overall score is calculated based on a combination of four different categories measuring (1) rule of law, (2) growth of government, (3) regulatory inefficiency, and (4) open markets (http://www.heritage.org/index/explore). Each of these four categories align with different aspects of neoliberalism, and each is composed of specific variables and types of freedoms provided below:

(1) Rule of law is dictated by property rights, the ability to gain and accumulate private property, and freedom from corruption, which is the defined as the failed integrity of the economic market that enables a specific individuals or groups to be able to gain advantage over others at the expense of the whole.

(2) Government size consists of fiscal freedom and government spending. Fiscal freedom is the level to which an individual is able to manage their own wealth and income without relinquishing a significant portion of it to the government, for example through taxation. Government spending is concerned with the excessive number of federal funds a government spends that is not deemed as an appropriate "investment" and limits the growth of the private economy.

(3) Regulatory inefficiency is composed of business freedom, labor freedom, and monetary freedom. Business freedom the ability of an individual to entrepreneur their own business without interference from the government. Labor freedom is the freedom to find employment opportunities, and monetary freedom is the ability for individuals to have a stable and consistence form of currency for individuals to use.

(4) Open markets contain financial freedom, investment freedom, and trade freedom. Trade freedom is the economy's level of openness to trade from around the world, and to have investment freedom requires an environment that encourages entrepreneurial endeavors through opportunities and incentives. In order to have financial freedom requires a functional financial system that has available credit, payments, and investment services available for all.

Each of the ten variables across the four categories are weighted equally in the overall score. Among the sixty-five countries being used within the data set for this study, Armenia (69.2) and Peru (68.7) having the highest overall scores and Zimbabwe (21.4) and Turkmenistan (37.6) with the lowest overall scores in 2016.

The second index referenced to measure neoliberalism is the Economic Freedom of the World (EFW) Index by the Fraser Institute (https://www.fraserinstitute.org/economic-

freedom/dataset). It measures the economic freedom of 159 countries, with data available for most of these countries from 1970-2014. Similar to the Heritage Foundation, Fraser also determines the overall score through a combination of five different categories: (1) size of government, (2) legal systems and property rights, (3) sound money, (4) freedom to trade internationally, and (5) regulation. The data gathered to contribute to the rankings of each country are gathered by third-party sources, and each ranking ranges from 0-10 with 10 being the most economically free or neoliberal. Similar to the Heritage Foundation, the most recent data from 2014 indicates that, among the countries listed in this study, Armenia and Peru were found to be the most economically free with scores of 7.55 and 7.53, respectively. However, Brazil with a score of 4.66 and Zimbabwe with a score of 4.45 rounds out the least neoliberal countries of 2014. The content of each category are strikingly similar to those of the Heritage Foundation described above:

(1) Government size includes factors such as level of government consumption, level of government enterprises, tax rates, and availability of subsidies and transfers.

(2) Legal systems and property rights consider ideas such as integrity of the legal systems, protection of property rights, and legal enforcement of contracts.

(3) Sound money takes into account the level of inflation, the freedom to own foreign currency, and level of money growth within the past year.

(4) Freedom to trade includes tariffs, regulatory trade barriers, and black-market exchange rates.

(5) Regulation factors in the state of the credit market, the labor market, and business regulations.

In order to confirm that the two indexes were similar, a correlation test between the Heritage index and Fraser index was conducted ($r=0.74$, $P<<0.01$). Using the data from the two indices, a new neoliberal index was produced to predict values where a country was missing its neoliberal value. It was created based on the results of a combined linear regression from both indices, with the Heritage Index as the primary default index. Correlation tests were then performed to confirm that the new predicted neoliberal index was representative of both original indexes. A Pearson's correlation test against the predicted index with the original Heritage index yielded a high correlation of $r=0.79$ ($P<0.01$). Similarly, the correlation between the new index and the Fraser index was calculated from the linear regression model confirmed the correlation coefficient to be $r=0.79$ ($P<0.01$). Therefore, throughout the rest of this study, this new predicted neoliberal index was used in all cases mentioning neoliberalism unless noted otherwise. A higher neoliberal index value indicates high levels of neoliberalism for each nation.

Moderators

In order to measure income inequality, the GINI coefficient was used as the indicator. It effectively measures how far individuals or households deviate from a perfectly equal distribution of income. This is determined by calculating the area between a hypothetical line representing absolute equality and the Lorenz curve, which plots the cumulative share of income against the cumulative number of people in that particular population. It is measured on a scale of 0 to 1, where 0 would indicate perfect income equality and 1 would represents complete inequality. Data was obtained from the World Bank World Development Indicator database, with data available for 176 countries and many with data available from 1981-2014. In the case of a missing value corresponding to the needed year, the average was taken from the year before and

the year after the missing observation. In the case where there was no data immediately before or after the missing value to calculate the average, the earliest value before the necessary year was used under the assumption that past income inequality would be a greater predictor of its effects on the health outcome in the future.

The indicator for total health expenditures by the government also came from the World Bank World Development Indicator database, with data available from 1995-2014. The health expenditures are calculated as a percentage of that country's GDP and is the sum of both public and private health expenditure. It includes provisions for preventative and curative health services, family planning, nutrition, and emergency aid. Data collection methods and sources may vary from country to country, for example most low-income countries report data from other donors such as the DHS.

Official developmental assistance (ODA) per capita data was also found on the World Bank World Development Indicator database. ODA data is based on a sum of the loans made on concessional terms and grants provided to developing countries by the Development Assistance Committee (DAC) and other non-DAC nations. This money is provided to promote economic development and welfare in low-income countries. The amount listed is expressed in current US$, and data is available from 1960-2014. Population includes all residents regardless of citizenship or legal status, excluding immigrants and refugees.

The data for gross domestic product (GDP) was also obtained from the World Bank Development Indicator database. GDP is the market value of all goods and services produced by residents within a country, in order to determine consumption of fixed capital in a country. It is calculated by summing consumer spending, gross investment, government spending, and excess of exports over imports. Values are converted to US$ from domestic currency over one annual

period. Data is available from 1960-2015. Additionally, GDP per capita from the World Bank was also added as another potential moderator, but it is calculated by dividing a country's GDP by its population. Both GDP and GDP per capita are methods of measuring a country's economic output, one on a national level and other on an individual level.

Reproductive Health Outcomes

The women's reproductive health indicators were obtained through the Demographic and Health Survey (DHS) database from the United States Agency for International Development (USAID). Each survey conducted was over a period of 18-20 months in over 90 countries. DHS surveys utilize surveys, biomarkers, and geographic information to collect data from socioeconomic characteristics of a population to fertility and family planning. Samples drawn are representative on the national and regional level. The sampling process is drawn into a stratified two-step process. First, Enumeration Areas were drawn from previous Census information, which typically span one to more adjacent blocks within urban regions. Then, a sampling of current households is drawn from each of the designated Enumeration areas.

This study explores the timeframe between 1995-2015, using the most recently available DHS data for each of the 69 nations. According to the World Health Organization, global monitoring of reproductive healthcare encompasses more than the maternal mortality rate. THe following outcomes included in the study attempts to cover a wide variety of factors affecting women's health, from family planning to reproductive health. Therefore, this study includes the outcomes: (1) general fertility rate (n=64), (2) percentage of married women using any method of modern contraception (n=64), (3) percentage of women with unmet need for family planning

(n=64), (4) number of stillbirths per 1,000 live births (n=45), and (5) antenatal care (n=64) and (6) the maternal mortality rate (n=46).

(1) The general fertility rate measures fertility on the population level. It is the number of children born per woman up to three years prior per 1,000 women, between the ages of 15-44 in the DHS data.

(2) Usage of modern contraception among married women refers to the percentage of married women who are currently using any form of modern contraception including the pill, female sterilization, intra-uterine device, injectables, implants, male/female condoms, diaphragms, and emergency contraception.

(3) Unmet need for family planning is the percentage of women who do not want to become pregnant but are not on birth control. This is determined by survey enumerators asking a series of up to fifteen questions regarding their wants regarding pregnancy, existing knowledge about birth control, and their motivations behind not using contraception.

(4) The stillbirth indicator is defined as the number of fetal deaths in pregnancies of seven months or higher, and it is measured by asking women the number of stillbirths they have had in the five-year period preceding the survey.

(5) The antenatal care indicator was the calculated percentage of live births preceding the survey up to three years that received care during their pregnancy from a skilled provider.

(6) Maternal mortality rate was calculated by measuring the number of female deaths per 1,000 live births up to seven years prior to the survey between the ages of 15-49.

The DHS database reports reproductive health outcomes both on a national level and on an income-level within each country. Both of these outcomes were included within the study, because literature suggests contradicting patterns between the effects of neoliberalism on a national level and between socioeconomic statuses within a nation. As mentioned in the previous literature review, neoliberalism is associated with improved population health outcomes. However, the theory also suggests that poorest will do worse than the richest. Because the gap between these two groups theoretically increases in association with neoliberalism, I calculated an inequality ratio that reflects the difference in health outcome between the two groups to be included in the study.

For example, 20 percent of married women in the Congo are using a modern method of contraception nationally. Within the richest quintile, 29 percent of married women use modern contraception. Meanwhile, only 10 percent of married women within the poorest quintile use modern contraception. Therefore, by dividing percentage from the richest quintile by the poorest quintile, the inequality ratio for modern contraception in the Congo would be three. In the case of this particular reproductive health outcome, an increasing inequality ratio indicates increasing disparity between the richest and the poorest.

Data Analysis

For the sake of consistency, all variables for each country matched the year that the DHS data was collected for each reproductive health outcome. For example, if the reproductive health outcome was collected in 2005 for India, the GINI coefficient, GDP, government health expenditures, and ODA for India from the year 2005 was used. Subsequent data analysis was conducted using the statistical analysis software, R Studio. Models A and B were tested by performing correlation tests and linear regressions for each of the steps within the model

connecting the variables, which were labeled as Pathway I, II, and III. Pathway I (Figure I) would confirm the existence of a connection between neoliberalism and the reproductive health outcomes. Pathway II & III (Figure 2) is intended to explore potential mediators connecting Pathway I.

Part 1 of my analysis was simply testing Pathways I, II, and III using the predicted neoliberal scale and national level health outcome. For example, testing Pathway I, the neoliberal-health outcome pathway, would consist of conducting a correlation test and regression analysis between neoliberalism and the national percentage of women who received antenatal care. Pathway II, the neoliberalism-moderator pathway, would test a relationship between neoliberalism and each of the four moderators, such as neoliberalism and GDP. Pathway III, the moderator-health outcome pathway, would then explore the connection between one of the four moderators, such as GDP, and a reproductive health outcome, such as antenatal care.

The data analysis process for Part 2 followed the same methodology as Part 1. However, the values for national level reproductive health was replaced with the inequality ratio. Therefore, in Pathway I, which explores the neoliberalism-health outcome connection, a correlation test and regression analysis was conducted for the relationship between neoliberalism and the inequality ratio of antenatal care. Similarly, Pathway III, the moderator-health outcome, tested the relationship between the four moderators and the inequality ratio of each of the six reproductive health outcomes. Pathway II was not tested again, because the health outcomes were the only variables that changed between Part 1 and 2.

Part 3 of the study was an exploratory step to investigate whether national income level plays a role in the effects of neoliberalism on reproductive health outcomes. The 65 countries in my data set were separated into three separate strata: low-income, lower-middle-income, and

upper-middle-income. Pathways I, II, and III, were tested for each of these three groups separately. For example, Pathway I, the neoliberalism-health outcome pathway, explored the relationship between neoliberalism and national level antenatal care separately within low-income countries, lower-middle-income countries, and upper-middle-income countries. Pathway II, the neoliberalism-moderator pathway, was conducted in across all three strata. Similarly, Pathway III, the moderator-health outcome pathway, was also tested across all threes strata.

Part 4 continues to work with the stratified data, testing the Pathways I and III. However, the inequality ratio was used as the reproductive health outcome instead of the national level reproductive health outcome. Pathway II was not retested, because the relationship between neoliberalism and the four moderators have already been exploring in Part 3.

Results

Table 1. General summary data set lists the characteristics and averages of countries within data set are listed based on income level. Values in parentheses are the standard deviations of the calculated average.

Income Level	N	GDP (US$)	% GDP for Health Expenditure	ODA per capita (US$)	GINI Coefficient	Neoliberal Index
Low	23	$599.04 (196.09)	6.49 (2.24)	60.01 (27.90)	42.21 (7.66)	51.56 (8.88)
Lower-middle	28	$1,653.48 (865.76)	5.229 (2.04)	59.58 (65.45)	41.18 (9.78)	55.51 (5.73)
Upper-middle	14	$5,514.69 (2,133.56)	5.90 (1.93)	47.58 (64.95)	44.54 (10.77)	55.29 (8.72)
Total	65					

Average ODA received per capita decreased as the income level increased. There was no clear linear increase in the average percentage of GDP allocated for health expenditures or the average GINI coefficient. However, upper-middle-income countries had the highest average GINI coefficient. Additionally, the average neoliberal index for low-income countries were lower than the neoliberal index for both middle-income groups.

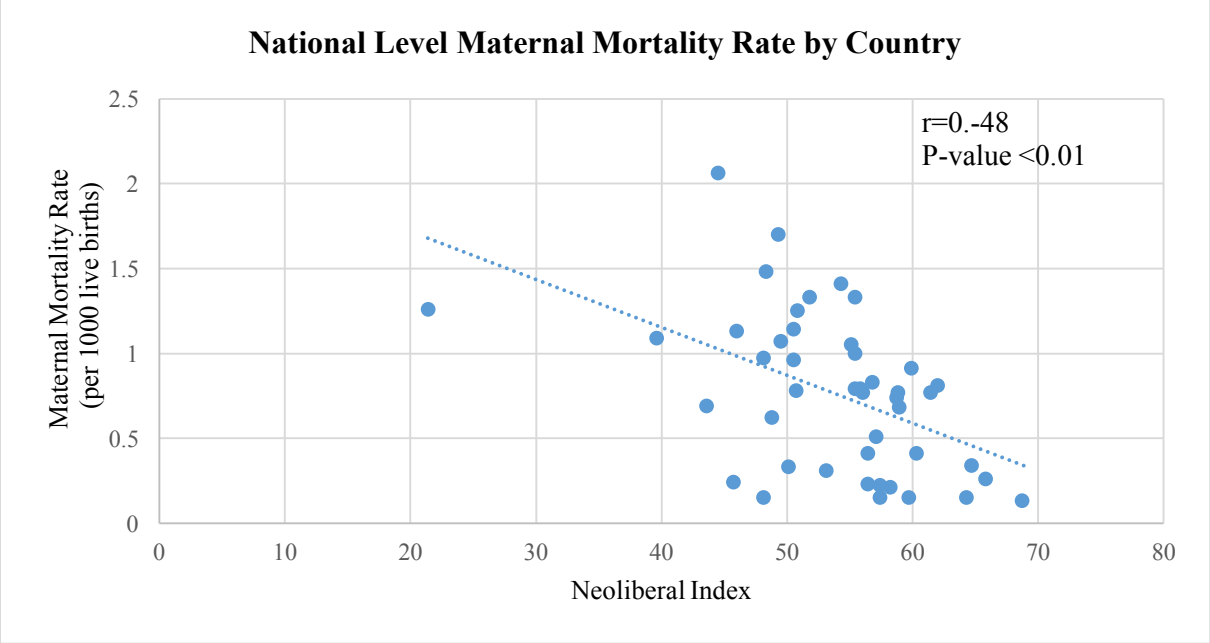
Part 1: National Level Analysis

Table 2. Listing of correlation coefficients for national level analysis Pathway I, between the neoliberal index and national level of reproductive health outcomes. Bolded values are statistically significant.

National Level Health Outcome	Correlation Coefficient (r)
General Fertility Rate	-0.15
Use Modern Contraception	0.07
Unmet Need for Family Planning	-0.15
Stillbirth	0.02
Antenatal Care	0.13
Maternal Mortality Rate	**-0.48 ****

P<0.1 +
P<0.05 *
P<0.01 **
P<0.001 ***

Figure 3. Neoliberalism is associated with positive health impacts, due to decreasing maternal mortality rate as neoliberalism increases.



Initial analysis exploring the direct relationship (Pathway I from Model A) between neoliberalism and the six health outcomes yielded a statistically significant relationship. There

was a negative correlation for maternal mortality rate with a coefficient of r = -0.48 (P<0.01) with maternal mortality rate. The general trend indicates that as neoliberalism increases, the maternal mortality rate decreases (Figure 3). There was no significant correlation between neoliberalism and any of the other health outcomes

Table 6. Listing of correlation coefficients for Pathway II, between predicted neoliberal index and moderators.

Moderators	Correlation Coefficient (r)
GDP	0.22
Health Expenditures	-0.02
Official Development Assistance	0.00
GINI Coefficient	0.22
P<0.1 $^{+}$ P<0.05 * P<0.01 ** P<0.001 ***	

The relationship between neoliberalism and the four potential neoliberal moderators: GDP, percentage of health expenditure, official development assistance (ODA), and income inequality (GINI), were tested and yielded no strong correlations and no statistically significant connection with any of the four moderators.

Table 4. Listing of correlation coefficients for Pathway III, between moderators and national level of reproductive health outcomes. Bolded values are statistically significant.

National Level Health Outcomes	Gross Domestic Product	Health Expenditures	Official Development Assistance	GINI Coefficient
General Fertility Rate	**-0.45****	-0.08	0.07	0.08
Use Modern Contraception	**0.36****	0.09	-0.12	**0.38****
Unmet Need for Family Planning	**-0.35****	0.18	**0.36***	-0.02
Stillbirths	-0.20	-0.27	**-0.22***	-0.08
Antenatal Care	0.15	**0.44****	**0.19***	0.08
Maternal Mortality Rate	**-0.48*****	0.19	-0.05	-0.28
P<0.1 $^{+}$ P<0.05 * P<0.01 ** P<0.001 ***				

Testing the relationships between each of the four potential moderators and the reproductive health outcomes yielded a number of statistically significant relationships. In general, increasing GDP was significantly correlated with the improvement of four of the six health outcomes as indicated in Table 3. Predictably, as GDP increased, the unmet need for family planning ($r=-0.35$, $P<0.01$), the maternal mortality rate ($r=-0.48$, $P<0.01$), and the fertility rate ($r=-0.45$, $P<0.01$) decreased while use of contraception increased ($r=0.36$, $P<0.01$). Additionally, as government health expenditures increased, antenatal care rates also increased with a correlation coefficient of 0.44 ($P<0.01$). Similar to health expenditures, as countries received more development assistance, numerous health outcomes improved, such as unmet need for family planning ($r=0.36$, $P=0.04$), stillbirths ($r=-0.22$, $P=0.05$), and antenatal care ($r=0.19$, $P=0.04$) with varying levels of correlation strength.

Surprisingly, Table 4 also indicates that income inequality and contraceptive use is positively correlated. This would mean that there is an association between increased income inequality and increased use of contraception amongst married women. Although GDP is controlled for in this analysis, there may be other confounding variables that have caused this relationship. Overall these results suggest that different reproductive health outcomes are affected by different moderators, and no uniform effect from one moderator can be observed across all six health outcomes.

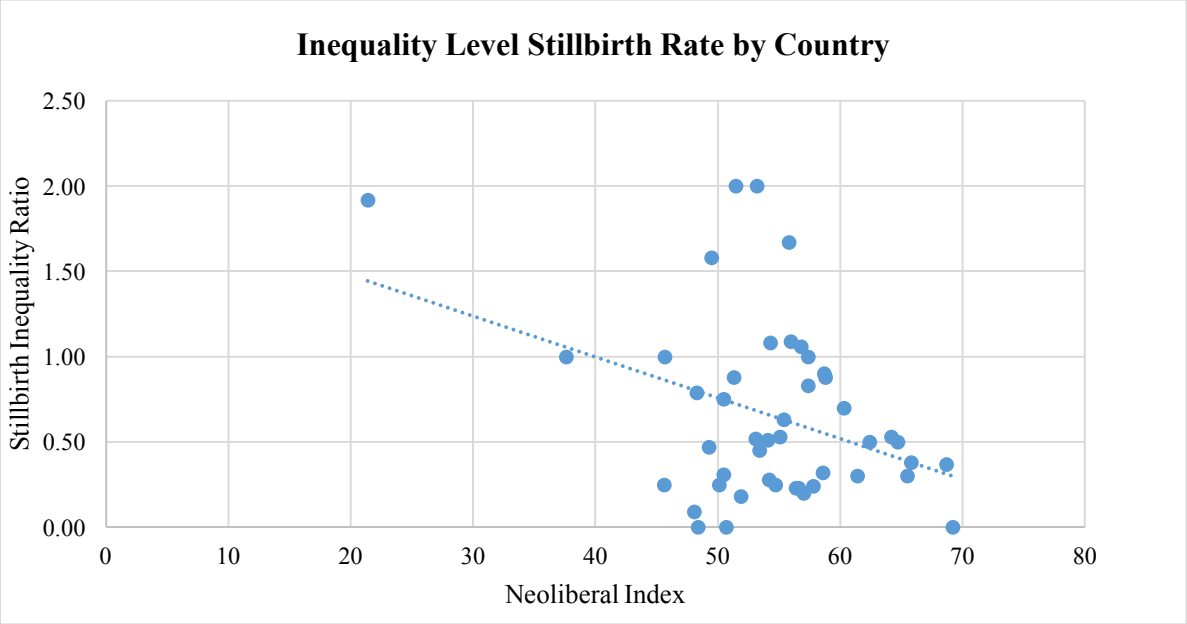
Part 2: Inequality Ratio Analysis

Table 5. Listing of correlation coefficients for Pathway I, between predicted neoliberal index and quintile ratio of reproductive health outcomes. Bolded values are statistically significant.

Individual Level Health Indicators	Correlation Coefficient (r)
General Fertility Rate	-0.07
Use of Modern Contraception	-0.14
Unmet Need Family Planning	-0.21
Stillbirths	**-0.39***
Antenatal Care	-0.11

P<0.1 +
P<0.05 *
P<0.01 **
P<0.001 ***

Figure 4. The figure shows that neoliberalism is associated with negative inequality impacts, due to decreasing quintile ratios of stillbirths as neoliberalism increases. (n=45). Although counterintuitive, a lower ratio indicates a larger difference in stillbirth between the top and bottom quintile.



In the third part of my analysis, the quintile ratios calculated by dividing the health outcomes of the top 20 percent of a population by the health outcomes of the bottom 20 percent of the population were used in the correlation and regression analyses, replacing the national level health outcomes used in the previous analysis. Initial correlation and linear regressions between the neoliberal index and the quintile ratio for the six health outcomes indicated a moderate negative correlation with stillbirths (P=0.01). As neoliberalism increases, the gap in the

number of stillbirths between the top 20 percent and the bottom 20 percent of the population of each country also increases. However, a relationship between neoliberalism and any of the other reproductive health indicators could not be refuted.

Table 6. Listing of correlation coefficients for Pathway III, between moderators and quintile ratio of reproductive health outcomes. Bolded values are statistically significant.

Individual Level Health Outcomes	Gross Domestic Product	Health Expenditures	Official Development Assistance	GINI Coefficient
General Fertility Rate	-0.23	-0.05	0.02	**-0.59*** **
Use of Modern Contraception	-0.14	-0.07	0.03	-0.02
Unmet Need Family Planning	**-0.21***	0.10	-0.01	**-0.46****
Stillbirths	-0.16	0.12	-0.23	-0.18
Antenatal Care	-0.13	**-0.29***	-0.23	-0.07

P<0.1 +
P<0.05 *
P<0.01 **
P<0.001 ***

When studying the relationships between the potential moderators and the quintile ratios, fertility rate and unmet need for family planning is negatively correlated with GINI (r=-0.59, P<0.01; r=-0.46, P=0.03). This indicates that increasing income inequality is associated with worsening health outcome gaps (Table 6). This gap for unmet need for family planning also increases as neoliberalism increases, however this relationship is relatively moderate (r=-0.21, P=-0.02). This analysis has also indicated that health expenditures are related to the improvement of the gap between the top 20 percent and the bottom 20 percent regarding antenatal care (r=-0.29, P=0.03).

Part 3: National Level Analysis Stratified by Income

The following section will contain results from the same analyses as Part 1 and Part 2. However, in Part 3, the data now will be stratified based on income level dictated by the World Bank. This consists of exploring the level of influence neoliberalism may have on the reproductive health outcomes within each of the three income levels: low-income, lower-middle-income, and upper-middle-income. This section also hopes to explore the difference in effect of neoliberalism across the three income levels. This was done by observing the beta coefficient between the three groups. Unfortunately, there is no way to confirm that the differences in the beta coefficient across the three income-groups are statistically significant.

Figure 5. Beta coefficients of Pathway I, between predicted neoliberal index and general fertility rate, separated by national income level.

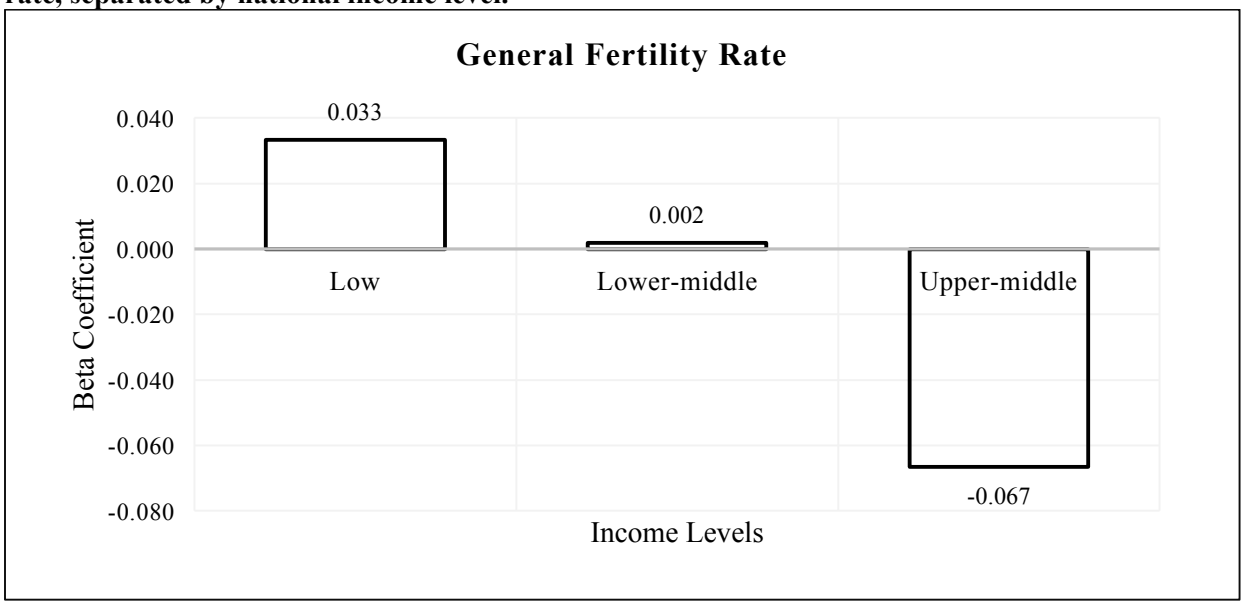


Figure 6. Beta coefficients of Pathway I, between predicted neoliberal index and use of modern contraception, separated by national income level.

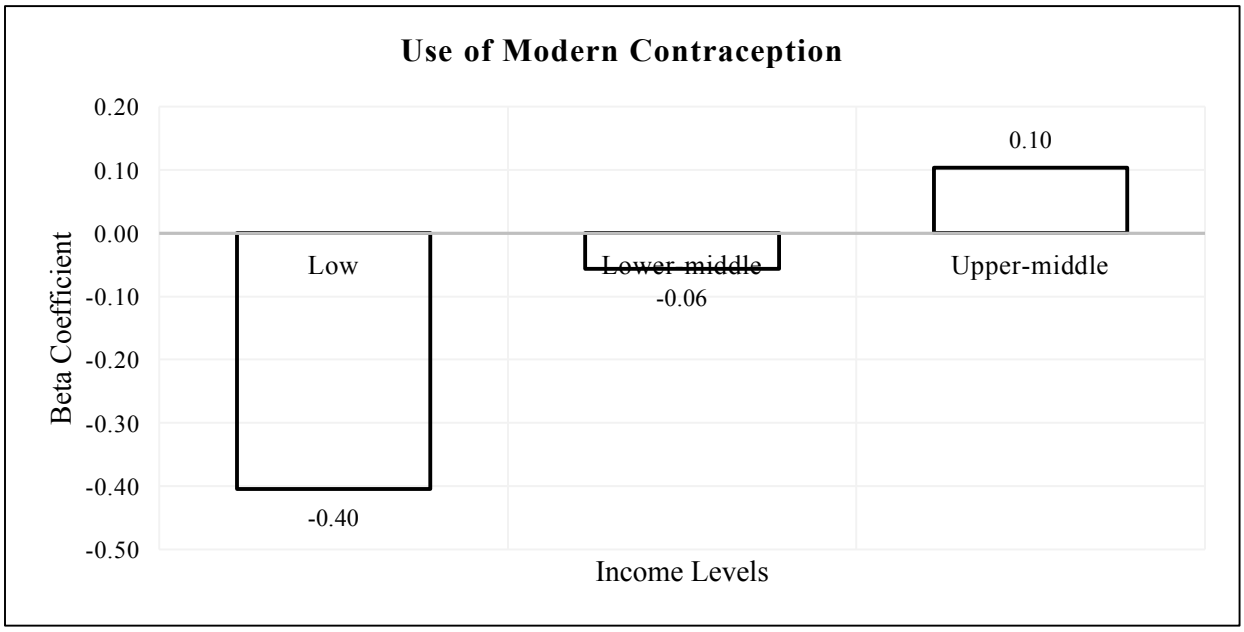


Figure 7. Beta coefficients of Pathway I, between predicted neoliberal index and unmet need for family planning, separated by national income level.

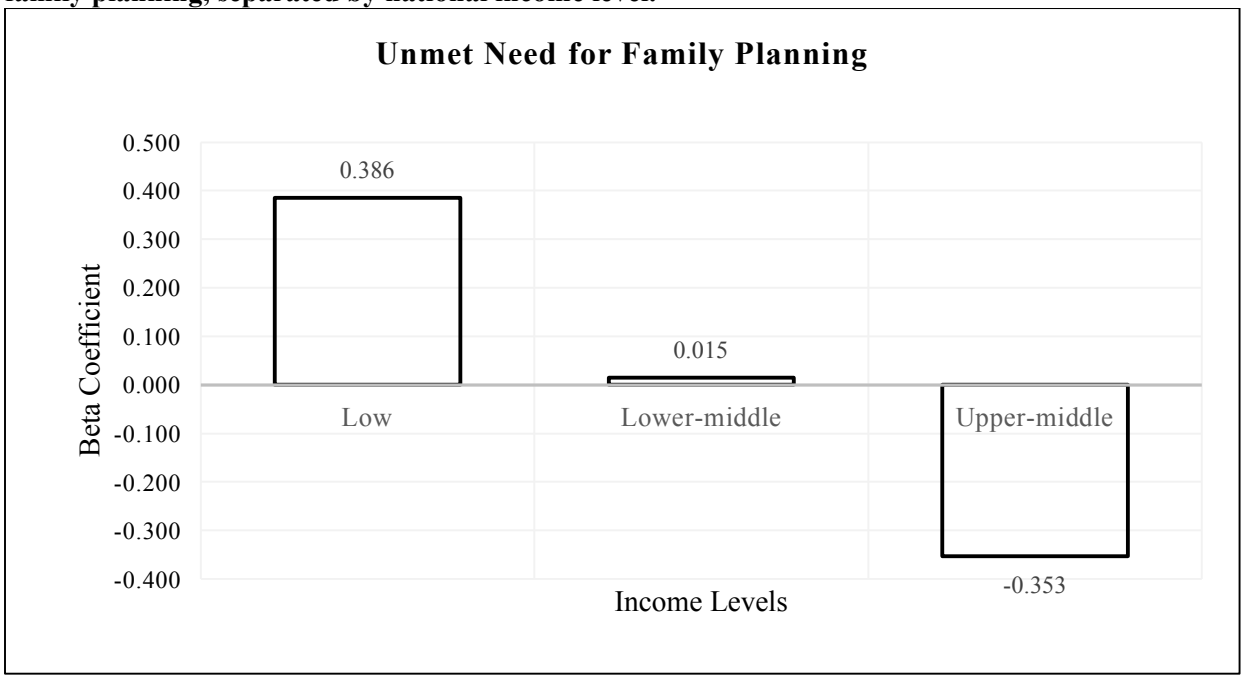


Figure 8. Beta coefficients of Pathway I, between predicted neoliberal index and the number of stillbirths, separated by national income level.

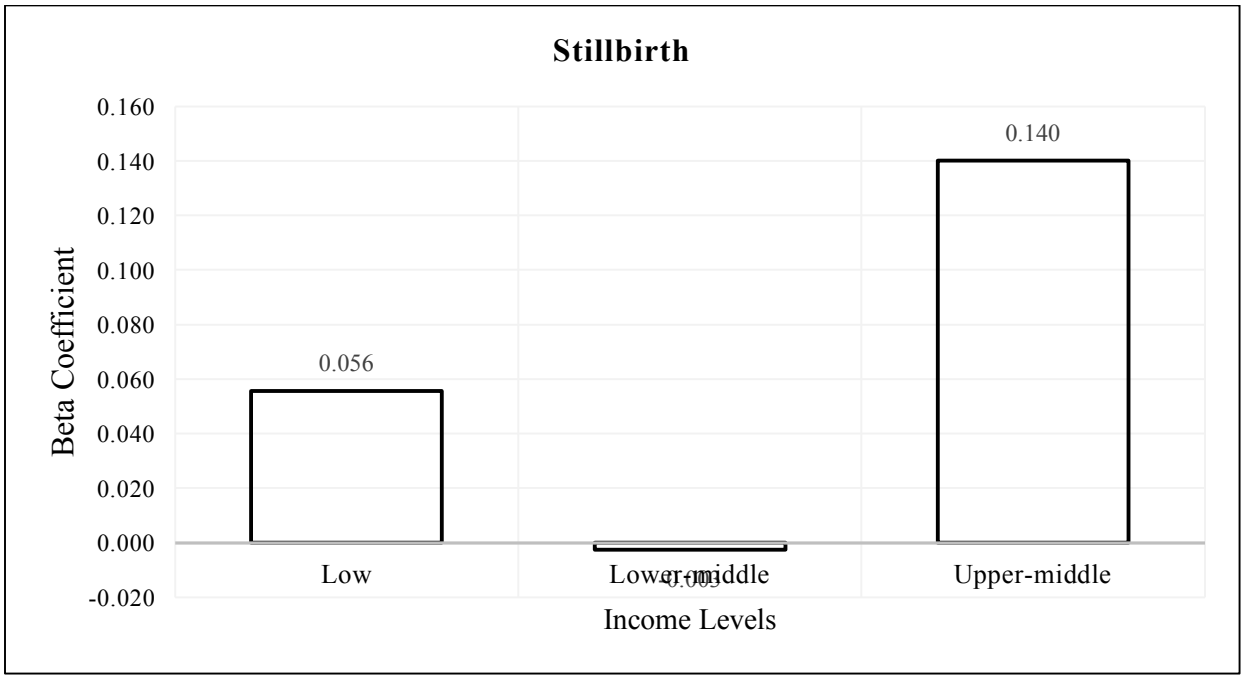


Figure 9. Beta coefficients of Pathway I, between predicted neoliberal index and antenatal care, separated by national income level.

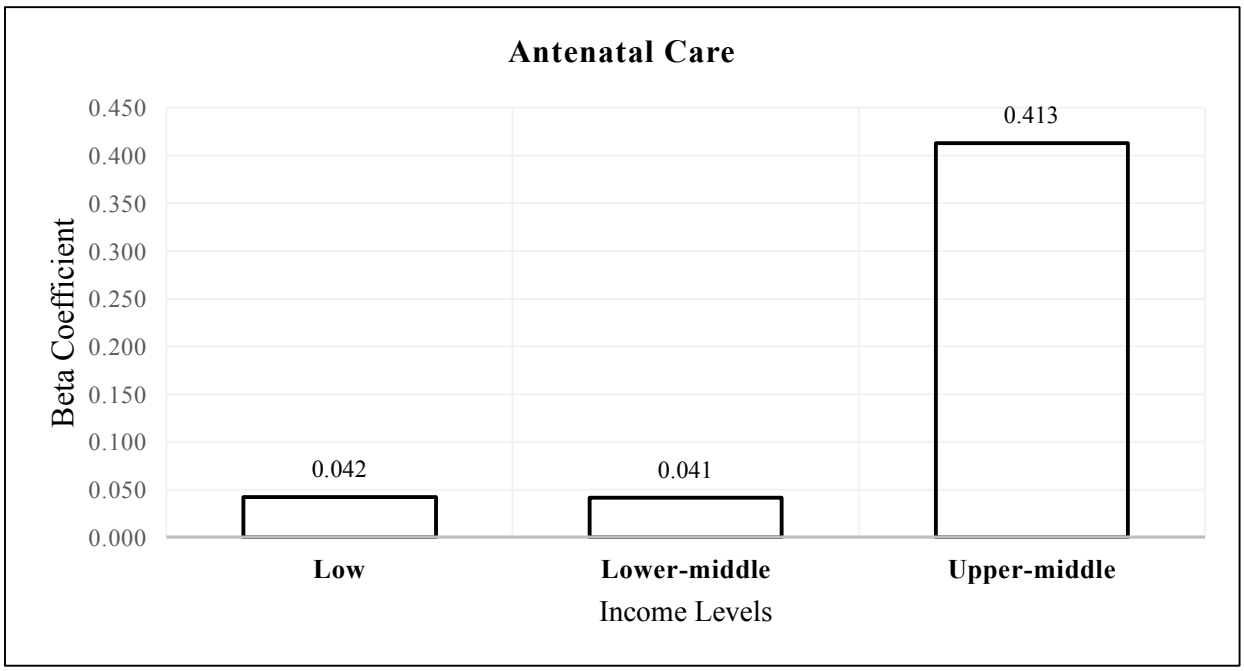
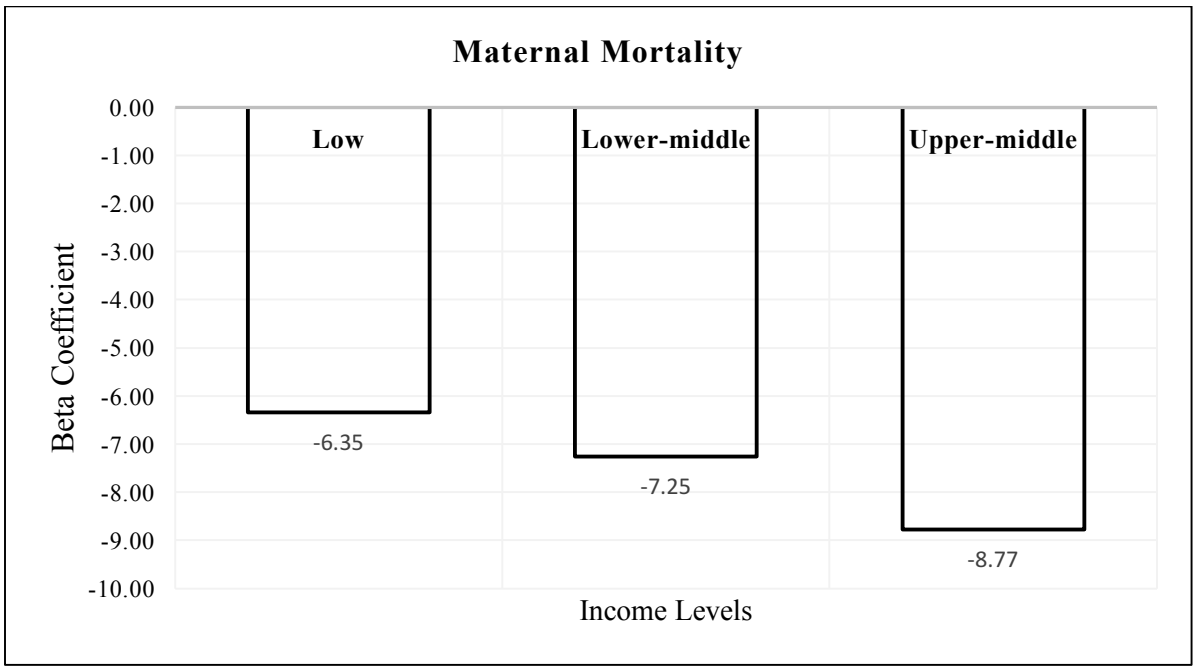


Figure 10. Beta coefficients of Pathway I, between predicted neoliberal index and maternal mortality rate, separated by national income level.



Figures 5-10 illustrate the marked differences in the effect that neoliberalism has on each reproductive health indicator based on income level. Not only are the levels of change different across income levels, the directionality of the effect also changed. For example, the directionality of the change in the use of modern contraception changes between low-income and upper-middle income countries. As neoliberalism increases, it is associated with a decreasing use of modern contraception by married women. In contrast, a one unit increase in upper-middle-income countries is associated with an 0.10 unit increase in contraceptive use. The negative association amongst low-income countries is four times the positive association amongst upper-middle-income countries.

Figures 8-10 continue to illustrate a difference in magnitude with which neoliberalism is associated with rates of change in stillbirths (Figure 8), antenatal care (Figure 9), and maternal mortality rate (Figure 10) across income levels. Across all of these indicators, neoliberalism

tends to be associated with the greatest level of change in upper-middle-income countries. Neoliberalism is associated with a linear decrease in maternal mortality rate as income level decreases (Figure 10). High income countries also experience a high increase in association between neoliberalism and antenatal care, and this pattern is also observable in the number of stillbirths across income level. When neoliberalism appears to improve health outcomes across income levels, the improvement is greatest in upper-middle-income countries. Overall, figures 5-10 only indicate that there is an income-based difference in the degree to which neoliberalism is associated with various indicators, and they deserve further study.

Part 3 National Level: Low-Income Countries

Table 7. Listing of correlation coefficients for Pathway I, between predicted neoliberal index and national level of reproductive health outcomes within low-income countries. Bolded values are statistically significant.

National Level Health Indicators	Correlation Coefficient (r)
General Fertility Rate	0.06
Use Modern Contraception	-0.24
Unmet Need for Family Planning	0.13
Stillbirths	0.21
Antenatal Care	0.09
Maternal Mortality Rate	-0.34
P<0.1 $^{+}$ P<0.05 * P<0.01 ** P<0.001 ***	

Table 8. Listing of correlation coefficients for Pathway II, between predicted neoliberal index and moderators within low-income countries. Bolded values are statistically significant.

Moderators	Correlation Coefficient (r)
Gross Domestic Product (GDP)	-0.11
Health Expenditures	0.01
Official Development Assistance (ODA)	0.06
GINI Coefficient	0.01
P<0.1 $^{+}$ P<0.05 * P<0.01 ** P<0.001 ***	

Table 9. Listing of correlation coefficients for Pathway III, between moderators and national level of reproductive health outcomes. Bolded values are statistically significant.

National Level Health Outcomes	Gross Domestic Product	Health Expenditures	Official Development Assistance	GINI Coefficient
General Fertility Rate	-0.17	-0.29	-0.27	-0.27
Use Modern Contraception	0.00	0.27	0.04	0.25
Unmet Need for Family Planning	-0.06	0.23	0.26	-0.01
Stillbirths	-0.43	-0.08	-0.35	-0.46
Antenatal Care	-0.10	**0.47***	**-0.48***	0.19
Maternal Mortality Rate	-0.08	-0.08	-0.15	-0.11

P<0.1 +
P<0.05 *
P<0.01 **
P<0.001 ***

Within low-income countries, the results failed to identify any statistically significant direct correlation between neoliberalism and the reproductive health indicators, despite a slight neoliberal association with contraceptive use and maternal mortality rate. However, contraceptive use appeared to worsen with increasing neoliberalism, while maternal mortality rates improved with increasing neoliberalism. In addition to not being statistically significant, the relationships observed gave contradictory and non-definitive illustrations of neoliberalism.

The results were also unable to verify a connection between neoliberalism and any of the four moderators. Variables such as GINI coefficient and percentage of health expenditure appeared to have almost no correlation with neoliberalism (Table 8). Therefore, the models proposed in the study cannot be verified across low-income countries, despite finding a few statistically significant relationship linking moderators with the reproductive health outcomes (Table 9).

Part 3 National Level: Lower-Middle-Income Countries

Table 10. Listing of correlation coefficients for Pathway I, between predicted neoliberal index and national level of reproductive health outcomes, within lower-middle-income countries. Bolded values are statistically significant.

National Level Health Indicators	Correlation Coefficient (r)
General Fertility Rate	-0.10
Use Modern Contraception	-0.03
Unmet Need for Family Planning	0.00
Stillbirths	-0.12
Antenatal Care	0.11
Maternal Mortality Rate	**-0.52***

P<0.1 +
P<0.05 *
P<0.01 **
P<0.001 ***

Figure 11. The figure shows that neoliberalism is associated with positive health impacts within lower-middle-income countries, due to the decreasing rate of maternal mortality as neoliberalism increases (n=16).

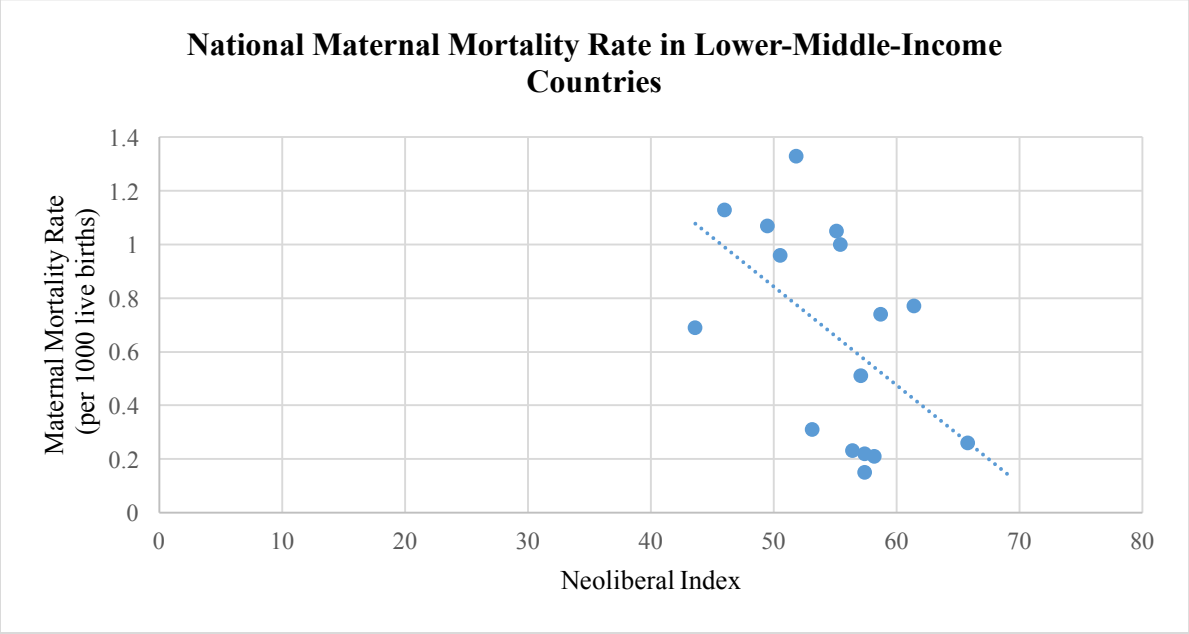


Table 12. Listing of correlation coefficients for Pathway II, between predicted neoliberal index and moderators, within lower-middle-income countries. Bolded values are statistically significant.

Moderators	Correlation Coefficient (r)
Gross Domestic Product (GDP)	**0.50*** **
Health Expenditures	-0.14
Official Development Assistance (ODA)	0.03
GINI Coefficient	0.20

P<0.1 +
P<0.05 *
P<0.01 **
P<0.001 ***

Table 13. Listing of correlation coefficients for Pathway III, between moderators and national level of reproductive health outcomes, within lower-middle-income countries. Bolded values are statistically significant.

National Level Health Outcomes	Gross Domestic Product	Health Expenditures	Official Development Assistance	GINI Coefficient
General Fertility Rate	-0.24	-0.23	0.23	**0.37***
Use Modern Contraception	0.11	0.30	-0.34	0.26
Unmet Need for Family Planning	-0.26	-0.18	**0.41****	0.06
Stillbirths	-0.22	-0.33	-0.27	-0.07
Antenatal Care	-0.17	**0.48***	0.20	-0.03
Maternal Mortality Rate	-0.24	0.09	-0.20	0.19

P<0.1 +
P<0.05 *
P<0.01 **
P<0.001 ***

Exploring potential relationships between the reproductive health outcomes and neoliberalism across lower-middle-income countries reveal a statistically significant correlation with the maternal mortality rate with a correlation coefficient of r=-0.52 (P=0.04). Increasing neoliberalism appears to be associated with improving levels of maternal mortality (Figure 11). Testing Pathway II across the lower-middle-income stratum reveals that the neoliberal index is positively correlated with GDP (r=0.50, P<0.01). However, the study did not observe a connection between GDP and any of the health outcomes. Therefore, Model B was overall

refuted for lower-middle-income countries, despite several correlations between the other three moderators across several reproductive health indicators (Table 13).

Part 3 National Level: Upper-Middle-Income Countries

Table 14. Listing of correlation coefficients for Pathway I, between predicted neoliberal index and national level of reproductive health outcomes, within upper-middle-income countries.

National Level Health Indicators	Correlation Coefficient (r)
General Fertility Rate	-0.32
Use Modern Contraception	0.09
Unmet Need for Family Planning	-0.25
Stillbirths	0.33
Antenatal Care	0.40
Maternal Mortality Rate	-0.17
P<0.1 $^{+}$ P<0.05 * P<0.01 ** P<0.001 ***	

Table 15. Listing of correlation coefficients for Pathway II, between predicted neoliberal index and moderators.

Moderators	Correlation Coefficient (r)
Gross Domestic Product (GDP)	0.26
Health Expenditures	0.25
Official Development Assistance (ODA)	-0.09
GINI Coefficient	0.23
P<0.1 $^{+}$ P<0.05 * P<0.01 ** P<0.001 ***	

Table 16. Listing of correlation coefficients for Pathway III, between moderators and national level of reproductive health outcomes. Bolded values are statistically significant.

National Level Health Outcomes	Gross Domestic Product	Health Expenditures	Official Development Assistance	GINI Coefficient
General Fertility Rate	0.08	-0.34	-0.12	0.25
Use Modern Contraception	0.29	0.04	-0.27	**0.76*** **
Unmet Need for Family Planning	0.19	0.34	**0.53***	-0.11
Stillbirths	0.39	-0.04	-0.49	0.51
Antenatal Care	0.07	0.21	0.06	0.23
Maternal Mortality Rate	0.38	-0.05	**0.84***	-0.05

P<0.1 +
P<0.05 *
P<0.01 **
P<0.001 ***

Despite higher correlation coefficients indicating potential relationships between neoliberalism and several reproductive health indicators, the results reveal these correlations to not be statistically significant (Table 14). Similarly, several moderators appeared to be marginally correlated with neoliberalism, however they could not be verified due to lack of statistical significance (Table 15). Additionally, there were several relationships between the moderators and the reproductive health outcomes (Table 16). Unfortunately, these relationships do not contribute to confirming Model B, since Pathway II between neoliberalism and moderators could not be verified.

Part 4: Inequality Ratio Analysis Stratified by Income Level

The following results continue to analyze the data based on the three stratified income levels. However, the reproductive health outcome used is now the inequality ratio rather than the national level health outcome. Pathway I, between neoliberalism and the reproductive health inequality ratio, are analyzed first. Following this is an analysis of Pathway III, exploring the

connection between the four moderators and the reproductive health inequality ratio separately within each income level.

Part 4 Inequality Ratio: Low-Income Countries

Table 17. Listing of correlation coefficients for Pathway I, between predicted neoliberal index and quintile ratio of reproductive health outcomes within low-income countries. Bolded values are statistically significant.

Inequality Ratio of Health Indicators	Correlation Coefficient (r)
General Fertility Rate	0.10
Use of Modern Contraception	0.28
Unmet Need Family Planning	0.34
Stillbirths	-0.53
Antenatal Care	0.00

P<0.1 +
P<0.05 *
P<0.01 **
P<0.001 ***

Table 18. Listing of correlation coefficients for Pathway III, between moderators and quintile ratio of reproductive health outcomes within low-income countries. Bolded values are statistically significant.

Inequality Ratio of Health Outcomes	Gross Domestic Product	Health Expenditures	Official Development Assistance	GINI Coefficient
General Fertility Rate	-0.07	**-0.30***	-0.32	-0.26
Use of Modern Contraception	-0.07	-0.29	0.00	-0.18
Unmet Need Family Planning	-0.18	-0.07	-0.14	-0.20
Stillbirths	0.05	-0.42	-0.29	0.16
Antenatal Care	-0.05	-0.34	-0.34	-0.04

P<0.1 +
P<0.05 *
P<0.01 **
P<0.001 ***

Part 4 Inequality Ratio: Lower-Middle-Income Countries

Table 19. Listing of correlation coefficients for Pathway I, between predicted neoliberal index and quintile ratio of reproductive health outcomes within lower-middle-income countries. Bolded values are statistically significant.

Inequality Ratio of Health Indicators	Correlation Coefficient (r)
General Fertility Rate	-0.01
Use of Modern Contraception	-0.36
Unmet Need Family Planning	-0.05
Stillbirths	-0.38
Antenatal Care	-0.15

P<0.1 +
P<0.05 *
P<0.01 **
P<0.001 ***

Table 20. Listing of correlation coefficients for Pathway III, between moderators and quintile ratio of reproductive health outcomes within lower-middle-income countries. Bolded values are statistically significant.

Inequality Ratio of Health Outcomes	Gross Domestic Product	Health Expenditures	Official Development Assistance	GINI Coefficient
General Fertility Rate	0.01	-0.05	0.09	**-0.75*** **
Use of Modern Contraception	-0.11	-0.07	0.06	0.00
Unmet Need Family Planning	-0.12	0.29	0.05	**-0.50** **
Stillbirths	0.02	**0.45**+	-0.17	-0.06
Antenatal Care	0.31	-0.12	-0.04	0.33

P<0.1 +
P<0.05 *
P<0.01 **
P<0.001 ***

Part 4 Inequality Ratio: Upper-Middle-Income Countries

Table 21. Listing of correlation coefficients for Pathway I, between predicted neoliberal index and quintile ratio of reproductive health outcomes within upper-middle-income countries. Bolded values are statistically significant.

Inequality Ratio of Health Indicators	Correlation Coefficient (r)
General Fertility Rate	-0.29
Use of Modern Contraception	0.24
Unmet Need Family Planning	-0.63
Stillbirths	-0.17
Antenatal Care	-0.40

P<0.1 +
P<0.05 *
P<0.01 **
P<0.001 ***

Table 22. Listing of correlation coefficients for Pathway III, between moderators and quintile ratio of reproductive health outcomes within upper-middle-income countries. Bolded values are statistically significant.

Inequality Ratio of Health Outcomes	Gross Domestic Product	Health Expenditures	Official Development Assistance	GINI Coefficient
General Fertility Rate	-0.27	0.15	0.04	**-0.57***
Use of Modern Contraception	-0.33	0.06	-0.02	0.05
Unmet Need Family Planning	**-0.53**$^{+}$	-0.26	-0.10	**-0.60***
Stillbirths	-0.43	-0.27	-0.40	**-0.61***
Antenatal Care	-0.02	-0.26	-0.11	-0.24

P<0.1 +
P<0.05 *
P<0.01 **
P<0.001 ***

Upon stratifying the data based on income level and reanalyzing Pathway I, between neoliberalism and inequality ratios of the reproductive health outcomes, there was no statistical significance found in any of the correlations across the strata. This may be an indication of the messiness of the data and the existence of many outliers due to the method in which the health inequality ratio was calculated.

In testing whether Model B applies to the inequality ratios, Pathway II between neoliberalism and moderators has already been refuted across all income levels through previous analyses, nullifying the proposed model. However, Pathway III (between moderators and the health inequality ratios) were still conducted, and the results are worth consideration. The associations across the three income levels were predictable and verified previous research. For example, income inequality was more associated with multiple health inequalities within middle-income countries (Table 20, 22). A relationship between income inequality and income quintiles were not as strong nor significant within low-income countries (Table 18). The opposite effect was observed for health expenditures, which were associated more with low-income and lower-middle income group (Table 18, 20).

Additional GDP Analysis

Previous results indicate that none of the four original moderators tested in Model B verified a potential pathway, additional testing was conducted using GDP per capita as an indicator of a nation's economic state rather than GDP. GDP per capita is calculated simply by taking the GDP divided by the population size. It provides a more accurate picture of the living standards from an individual level, and it controls for countries with larger populations. The following results are simply the previous Model B conducted again using GDP per capita as a moderator. First, the Pathway II, between neoliberalism and GDP per capita, will be tested. Secondly, Pathway III, between GDP per capita and the reproductive health outcomes, will be tested both using the national level data and the inequality ratio.

Figure 12. The figure shows that neoliberalism is associated with increases in GDP per capita. As neoliberalism increases, GDP per capita increases. This relationship has a correlation coefficient of 0.29 (P=0.03).

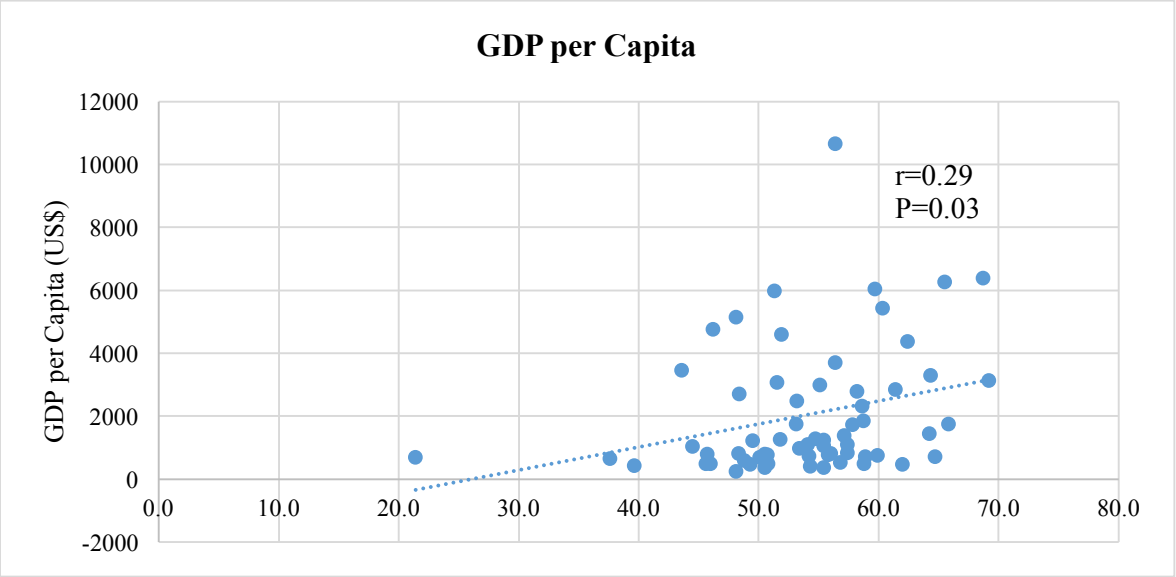


Table 23. Listing of correlation coefficients for Pathway III, between the moderator, GDP per capita, and national level reproductive health outcomes. Bolded values are statistically significant.

National Level Health Indicators	Correlation Coefficient (r)
General Fertility	**-0.40****
Use of Modern Contraception	**0.30****
Unmet Need Family Planning	**-0.29****
Stillbirths	-0.16
Antenatal Care	0.17
Maternal Mortality	**-0.47****

P<0.1 +
P<0.05 *
P<0.01 **
P<0.001 ***

Table 24. Listing of correlation coefficients for Pathway III, between the moderator, GDP per capita, and inequality ratio of reproductive health outcomes. Bolded values are statistically significant.

Inequality Ratio of Health Indicators	Correlation Coefficient (r)
General Fertility Rate	-0.18
Use of Modern Contraception	-0.11
Unmet Need Family Planning	-0.12
Stillbirths	-0.20
Antenatal Care	-0.14

P<0.1 +
P<0.05 *
P<0.01 **
P<0.001 ***

Based on the results of Figure 7 and Table 22, GDP per capita as a moderator does verify Model B on a national level. This suggests that neoliberalism could be affecting reproductive health outcomes through GDP per capita. Neoliberalism is associated with an improvement of a country's economic state, and this economic improvement is associated with decreased general fertility, maternal mortality, and unmet need for family planning. It is also associated with increased use of modern contraception. However, the relationship between GDP per capita and inequality ratios could not be confirmed, due to low correlation coefficients and no statistical significant relationships.

Discussion

The aim of this thesis was to investigate several questions regarding how neoliberalism affects reproductive health, and the potential pathways in which this effect could occur. This study has three key results: First, neoliberalism is correlated with the improvement of maternal mortality rates. Second, neoliberalism is also correlated with an increase in reproductive health inequality based on the number of stillbirths among top and bottom income quintiles. Finally, despite strong correlations between the tested moderators with the reproductive health outcomes, there failed to be a significant relationship between neoliberalism and the tested moderators. Ultimately, the proposed pathways relating neoliberalism and the reproductive health indicators could not be verified. Before further discussion about these results, I will highlight some of the study limitations.

Study Limitations

Inconsistency of Sources

Due to the data-dependent nature of this study, inconsistencies in data sources were a large concern. This study's data comes from multiple different sources including, a conservative American think tank, a United States government agency, and an international financial organization. I attempted to control the sources of my data by ensuring that the data for each variable came from the same source. For example, the data for my four moderators all came from the World Bank and all my reproductive health outcomes came from USAID's Demographic and Health Survey. However, collection methods can still vary by country and by the year that the data collection occurred. Therefore, it is important to reexamine the potential shortcomings of each data source.

Lack of Data Availability

Secondly, there were significant inconsistencies in data availability across reproductive health outcomes from the DHS data. While certain indicators such as general fertility rate had values for all sixty-five countries within the data set, other indicators, such as the number of stillbirths, only had information for forty-five countries. This variability may have created a skew in the results of the data analysis and does not provide a complete depiction of potential trends consistent across all of the countries within the data set. Similarly, there were also discrepancies in data availability regarding GINI coefficients. How these approximations were calculated have been discussed previously in the methods section.

Uneven Distribution of Income Level

Third, this study did not assess an equal number of countries across all income levels. Unfortunately, this is due to the nature of how the DHS focuses primarily on surveying low- and middle-income countries to monitor progress across developing countries. For reasons of consistency in sources, high income countries were not included. Therefore, the results of this study is not generalizable to all income-levels. Additionally, the data did not include an equal number of countries from each income level, as categorized by the World Bank. The study contained fewer upper-middle income countries than low- and lower-middle-income countries. This lack of uniformity across income levels, may have skewed the data to represent more low- and lower-middle-income countries.

Confounding Variables

Although my results indicated multiple significant relationships between variables, there were also many confounding variables that were unaccounted for throughout my data analyses. The most obvious one, GDP, was controlled for throughout the process. However, the inevitable presence of other unknown confounding variables limits the interpretation of my results. Therefore, although I can verify an association between, neoliberalism and health outcomes, I cannot definitively state the causation or direct effect of any of the relationships that were tested.

Lack of Comprehensive Reproductive Health Outcomes

Assuming that the DHS accurately represents the health of each national population, the six reproductive health indicators chosen for this study does not encompass all aspects of reproductive health. There may be better measures for reproductive health that were not considered or not widely available for use in this study. The best indicator for a nation's reproductive health status may also vary depending on the country's income level, healthcare system, etc. While reproductive health and family planning does not completely encompass every aspect of the female experience throughout her life, the six chosen indicators included attempted to explore reproductive health from as many different angles as possible by including outcomes regarding both family planning and pregnancy care.

Lack of Complete Moderators

Similar to the issues addressed regarding the reproductive health outcomes, the moderators examined in this study is not a comprehensive list of potential mediators in which neoliberalism can affect population health. For example, the lack of social cohesion or trust

levels in a society is highly regarded as a potential effect of neoliberalism. Although it merits further exploration, it could not be included in this study (Wilkinson 1992). Finding a consistent and reliable cross-national survey that has data available for low- and middle-income countries from the required time frame regarding societal trust level proved to be nearly impossible. This problem could be resolved in future studies by focusing the geographical area of study in order to increase availability of data from regional surveys. Another option could be to use a more general indicator such as national crime levels to represent lack of social cohesion.

Additionally, secondary analysis that tested GDP per capita as an indicator economic development instead of GDP indicates a statistically significant relationship that was not present before. Therefore, future research should be mindful when picking which quantifying data will be used to represent different moderators. A simple preliminary analysis of GDP per capita suggests different conclusions than previously thought. Future research should also reassess the other measures used for moderators such as official development assistance and government health expenditures in order to ensure that the moderators are accurately reflected in the value that is used to quantify them.

Problems of Quantifying Neoliberalism

For the purposes of data analysis in this study, the concept of neoliberalism must be quantified. However, methodically pinning down an idea as elusive as neoliberalism will inevitably lead to discrepancies across different sources. Even between the top three indexes conducted by the Heritage Foundation, the Fraser Institute, and the Freedom House, there were still slight variations in the factors that were included in each scale and how the scales were calculated. Although the indexes by the Heritage Foundation and Fraser Institute scales were

highly correlated with similar order in rankings, the Fraser Institute's index placed more emphasis on civil liberties (Hanke and Walters 1997). In contrast, the Heritage Foundation's index emphasized development assistance, justifying my decision to make the Heritage Foundation the primary index of my study, since development assistance has a larger impact on the countries in my data set due to their income-level (Hanke and Walters 1997).

My desire to conduct a cross-national, study compromised the depth and specificity of the neoliberal indexes I had to choose from. The Heritage index alone does not reflect every aspect of neoliberalism such as measures for structural adjustment programs. This may be due to the biases of the indexes themselves, which were created by conservative think tanks to promote and justify the importance of economic freedom in relation to economic development and prosperity. Therefore, the results in this study can only be interpreted based on the factors that were included in the Heritage Foundation Index.

As mentioned numerous times before, neoliberalism is multifaceted. Its policies cover many aspects of a country's economy and politics. This has been evidenced by all of the factors that are taken into account when conservative think tanks produce their "economic freedom" indices, and all of these factors are still not comprehensive. For example, the Heritage Foundation reviews countries based on four different categories, while the Fraser Institute calculates their index based on five categories. Future studies could further unpack these different categories of neoliberalism, which include variables such as government size and open markets, and test the relationship between them and different health outcomes. These results could help pinpoint exactly which aspects of neoliberalism are associated with the improvement or worsening of health outcomes. It will give help us better understand which specific policies can be modified to help improve population health.

Time Constraints

Due to time constraints, I was limited in my data analysis to stratifying my data set based only on income. However, the 65 countries in my dataset could have been categorized in other methods that could have yielded different results. Previous studies have categorized countries by government type to show that neoliberalism affects nations differently based on government structure (Navarro et al. 2006). Countries could have been categorized based on the length of time in which neoliberal policies have been adopted within their policies, (Navarro 2007) or on the amount of development assistance their government receives, especially in low- and middle-income countries. Conducting further studies exploring these possibilities will help determine which particular factors and qualities of a country makes its population's health more vulnerable or reactive to neoliberal policies.

Key Findings

Neoliberalism Correlated to Improvement in Maternal Mortality Rate

Current research regarding neoliberalism and its effect on population health still lacks consensus. Many quantitative studies have found that increased economic freedom is detrimental to the wellbeing of a population (Navarro et al. 2006, Mehrtens 2004). In contrast, other studies have verified a connection between neoliberalism and improved health outcomes (Tracey 2009; Grubel 1998; Esposto and Zaleski 1999). Aiming to build on this work, my study showed that neoliberalism is associated with the improvement of the maternal mortality rate. This connection does not include any of the tested moderators in the study.

The finding in my study is consistent with other large cross-national data analyses conducted, using similar variables and indexes. One cross-national analysis found that neoliberalism is correlated with a decreasing rate of under-five child mortality (Tracy 2009). An earlier empirical study by Grubel using Fraser's Economic Freedom of the World Index indicated that increasing economic freedom is associated with increased life expectancy (1998). Similarly, Esposto and Zaleski reported that economic freedom improves quality of life cross-nationally and longitudinally over time (1999).

In the studies that have contradicted my findings, they have all focused on high-income, capitalistic countries. For example, one such finding concluded that pro-redistributive countries with more egalitarian policies have improved health outcomes compared to more liberal countries with heavy reliance on the free market (Navarro et al. 2006; Coburn 2004). Another claims that countries following a strict open market policy with minimal government interference come with a "social cost". They underperform in various social indicators, such as teen childbirth and low literacy rates, but again, this pattern occurred within a subset of advanced, capitalistic countries (Mehrtens 2004). Although the studies have important implications regarding the connection between neoliberalism and decreasing health outcomes, this conclusion seems to apply almost exclusively to high-income countries.

Also inconsistent with my findings were qualitative studies that focus on a single country at a time. These studies conclude that neoliberalism negatively impacts population health and attitudes. In Nicaragua, neoliberalism has worsened conditions specifically for poor urban females (Babb 1996). In the case of Chile, the rapid adoption of neoliberal policies within the healthcare system has worsened health disparities (Labra 2002). Post-Poland's neoliberal reform brought an increased privatization of the nation's healthcare system. This led to restricted access

to reproductive care for women in this country, especially women who cannot afford paying for their own care (Mishtal 2010).

These large differences in conclusions could be due to variation in the scope of each study. Many studies were focused exclusively on Western European and North American countries, where the effect of neoliberalism is vastly different from low- and middle-income countries in the rest of the world (Navarro et al. 2006; Mehrtens 2002). Data sets ranged from a mere eighteen countries to 119 countries, including a wide range of government and economic systems. This present study extracted data ranging from 1995-2015, whereas some studies included data from as far back as 1980. Therefore, the comparability of the methods, data, and time range of these studies may vary leadings to different results from different perspectives, all of which may be valid.

Neoliberalism Associated with Increasing Stillbirth Inequality

It has been postulated that social inequalities created by neoliberalism drive social determinants of health that increase health inequality (Collins et al. 2016). The empirical analysis from my study aimed determine whether this trend applied to low and middle-income countries. My study empirically confirms this direct association between neoliberalism and increasing inequality in reproductive health, even in low and middle-income countries. The differences in the number of stillbirths between the top quintile and bottom quintile of countries increased as neoliberalism increased.

Although there are not much available literature exploring neoliberalism and health inequality in low- and middle-income countries, studies conducted in countries such as New Zealand, Great Britain, and United States show prominent patterns of neoliberalism worsening

the health inequality gap. This escalation in inequality does appear to occur following a brief period of improvement in population health and poverty. After a brief time, these improvements begin to slow and even decline (Collins et al. 2016). In the case of the United States and Great Britain, mortality rates began to increase following the adoption of neoliberalism (Navarro 2007). The time range of my analysis begins in 1995, which picks up almost right after the years in which neoliberal policies were adopted by many developing countries.

Current research supporting the mechanisms in which neoliberalism associates with health inequalities, even within high-income countries, are largely theory-based, without sufficient empirical evidence (Collins et al. 2016). Therefore, it was not surprising that I also failed to find a direct connection between my four proposed moderators that could explain this vastly complicated relationship across all 65 countries in my data set. One of the reasons behind this challenge may be that these pathways are contingent upon the political contextualization of each individual country (Collins et al. 2016). However, the inability of my study to verify these proposed models also highlights the importance of the continuation of such empirical analyses. In order for public health to develop focused and effective interventions, researchers must continue to actively question and test politico-economic determinants that are driving health inequalities, such as neoliberalism.

Considering National Income-Level in Neoliberal Effects

In an attempt to contextualize the effects of neoliberalism based on various characteristics distinguishing each individual country, my study stratified my set of 65 countries based on income level. By conducting this additional secondary analysis, this study aimed to discover if national income level is a variable influencing how neoliberalism affects reproductive health

outcomes. Since GDP is used as an indicator of economic prosperity and development, neoliberalism will inevitably affect countries in differing stages of economic development differently. This tendency to only analyze countries within the same income level can be seen in previous studies (Navarro 2002, Mehrtens 2007, Tracy 2007). However, even these studies fail to result in a consensus. Navarro and Mehrtens found a negative effect between neoliberalism and health (2002; 2007). Another analysis of the top 33 countries failed to make any connection (Tracy 2007).

This tendency for previous studies to isolate countries based on income level justified that the separation of the data set by income level was worth pursuing in an attempt to discover any differences in trends and health outcomes. Although previous analyses of the national aggregate data controlled for GDP, observing the analysis from physically stratified level allowed for the effects of neoliberalism to be observed from a different angle. The data confirmed that the effects of neoliberalism on the reproductive health outcomes varied by income-level. However, there were no statistically significant trends observed between neoliberalism and the reproductive health outcomes across income levels (Model A).

It is also worth noting that Model B, testing the proposed moderators, also drew no correlations across all three income levels that were tested. This suggests that existing theories about moderators such as health expenditures and income inequalities serving as a potential pathway in models about neoliberalism do not necessarily apply to low- and middle-income countries (Navarro 2007; Coburn 2004). We must rethink how neoliberalism might affect the reproductive health of a population within low-income countries and the forms in which these effects may take. These alternative pathways are especially worth understanding if we are to

continue implementing contemporary structural adjustment programs to low and middle-income countries in order to help improve them.

It is also important to note that isolating the countries based on income-level can produce misleading results, if not careful. Due to the high correlation of many health outcomes with GDP levels in this study, such as fertility rate and maternal mortality rate, isolating a specific outcome based on GDP could wash out the effects of the observed trends in the aggregate data. Observing any trends or lack of trends that neoliberalism may have on a specific income group does not negate any larger patterns observed in the data analysis of part one.

Potential Pathways in which Neoliberalism and Reproductive Health Occurs

As mentioned briefly before, the results of my study showed there to be virtually no correlation between neoliberalism and any of the four original moderators that were investigated, refuting Model B that was proposed in this study, even in income-specific groups. This could be due to the insignificance of the chosen moderators themselves. A well supported theory that has been proposed by Coburn claims that social cohesion would be an appropriate additional moderator for Model B (2000). Neoliberalism and its support for a more individualistic society would lower social cohesion or social trust within a society which would lead to the worsening of population health (Coburn 2000; Wilkinson 1992).

It could also be the case that the two-step model that was proposed was an oversimplification of the relationships connecting neoliberalism and reproductive health. My failure to connect neoliberalism with other moderators might indicate that that there are additional mediators connecting neoliberalism and the reproductive health outcomes. Previous

studies that have investigated solely the connection between income inequality and population health, and these models have placed health expenditures and social cohesion as the mediator between them. This would have added another step to my model.

Navarro proposes that neoliberalism and income inequality is not directly correlated the way it was proposed in this study (2006). Rather, it is mediated by the labor market and the welfare state creating a three-step model instead of a two-step model. Similarly, Coburn's model is also a three-step process where factors such as welfare regimes and labor markets serve as mediators that increase social inequalities, including health inequalities, and decreases social cohesion (2004). These effects, in turn, decreases the health outcome and wellbeing of a society. However, in the case of Navarro and Coburn, such multi-step processes raise the question of how the status of such large institutions such as the welfare states and the labor market can be accurately measured and quantified in order for such models to be tested. This method also assumes that all countries have existing and functioning welfare and labor infrastructures to be measured.

Additionally, this study may have also failed to verify a mechanism in which neoliberalism is associated with reproductive health outcomes, because the pathways are not uniform across all 65 countries within the data set. The proposed model is portrayed as a one-size-fits-all mechanism and it is simply not a realistic depiction of how politico-economic effects impact the world. This leaves room for further future research about other neoliberal moderators affecting reproductive health outcomes, especially in the case of low- and middle-income countries.

The Moderators Did Not Work, Why?

There are many ways in which neoliberalism can affect population health. Among those proposed, this study focused more on quantifiable, policy-related moderators. This included the gross domestic product, official development assistance the country receives, the percent of government health expenditures, and the GINI coefficient for income inequality. However, none of these moderators were found to be correlated with the economic freedom index. Secondary analyses using GDP per capita as an alternative measure for a country's economic state yielded statistical significance. This indicates that future research testing various moderators must be cautious when choosing indicators to represent predicted moderators.

Despite the lack in connection between neoliberalism and the original four moderators, their failure to result in an association is worth discussion in order to understand why. Additionally, many of the four original moderators had strong and significant relationships with the health outcomes. They simply failed to connect back to the larger interest in my study: neoliberalism.

The Effectiveness of Aid in Improving Reproductive Health

Existing literature regarding the connection between neoliberalism and government health expenditures is conflicting, due to the contrast between what is dictated by the neoliberal doctrine, and what happens in reality. The original neoliberal doctrine calls for a decentralized government where government spending on welfare programs and healthcare decreases and healthcare services are privatized (Navarro et al. 2006; Coburn 2004). In practice, governments actually increase its intervention in public expenditures such as healthcare (Navarro 2007).

Although this may be the case for high-income countries, the results of this study suggests otherwise for low- and middle-income countries.

This study failed to find a connection between health expenditures and neoliberalism because these country's lacked the funds from the beginning to spend on public health (MacGregor 2005). Government health expenditures cannot be reduced with the adoption of structural adjustment policies, if minimal government health expenditures existed prior to these changes. Additionally, the study observed that any increases in health expenditures predictably improved multiple reproductive health measures, both within the analysis of the aggregate data and the stratified data. Therefore, the effects of neoliberalism or structural adjustment policies on health expenditures are not transferable to low- and middle-income countries.

Due to this deprivation of appropriate funding from the country itself, it was also important for this study to consider a moderator such as official development assistance. International financial organizations like the IMF and the World Bank, looking for a rapid and effective method for pushing economic development within low- and middle-income countries, often made the adoption of neoliberal policies a condition for receiving financial assistance (Owusu 2003). Surprisingly, neoliberalism was not positively correlated with the amount of ODA a country received as expected. However, similar to government health expenditures, it was correlated with improvements in national level reproductive health outcomes.

Although health expenditures and the amount of ODA received improves reproductive health outcomes on a national level, there was almost no correlation between health expenditure and ODA with the health outcome ratios between the top and bottom quintiles. In some cases, the correlations indicated that health expenditures and official development assistance made the

gap in health outcomes worse. The question soon revolves around how this assistance, provided both from within the government and from external development agencies, is being distributed.

These increased funds for family planning, indicated by fertility rate and use of contraception, typically creates the impression that the demographics of a country is changing and "population problems" are no longer an issue when reviewing national level statistics. However, it is important to note that these large shifts in fertility do not address the poor, marginalized women in these countries that the markets have abandoned (Greene and Merrick 2005). Even as outcomes such as contraceptive use increase and fertility rates decrease, poor women may not have accurate information about effectiveness or safety of particular methods. They also face financial burdens as well as travel costs and distance that impede their access (Greene and Merrick 2005). However, the overwhelming improvements within the population of women with a higher socioeconomic status could skew national reports, creating the illusion of widespread national improvement.

Gross Domestic Product, Economic Growth, and Reproductive Health

Based on studies that were conducted by Gwartney et al., economic liberalization, or neoliberalism, is strongly correlated with economic growth (1996). Therefore, as economic liberalization declined so did GDP per capita, and my secondary analysis verified this. However when this study originally considered GDP as an indicator of a country's economic development, I predicted that neoliberalism would be positively correlated with GDP. This correlation was verified in one singular case, in the lower-middle-income groups, however this pattern was not observed in the analysis involving the aggregate data.

As a country's economic growth increases, it also leads to improved health outcomes (Hanke and Walters 1998; Deaton 2008). My study results verified this relationship, indicating that increased GDP improves reproductive health for a majority of the outcomes. However, studies conducted by Richard Wilkinson has shown that the relationship between GNP per capita and health outcome varies depending on the level of GNP per capita (1992). As a nation's GNP per capita reaches a threshold, the correlation between GNP per capita and health outcome weakens. Therefore, less developed countries often experience a rapid increase in health outcome as GNP per capita rises during initial economic growth. My results observed a similar pattern, where GDP was correlated with multiple reproductive health outcomes within low-income countries. In contrast, countries in the upper-middle-income group had either no correlation or a negative correlation between GDP and other health outcomes, such as stillbirths and maternal mortality rate. Secondary analyses of GDP per capita indicates that it is associated with improvements of several reproductive health outcomes.

Income Inequality and Reproductive Health

The most supported hypothesized pathway in which neoliberalism impacts health outcome is income inequality (Navarro et al. 2006; Coburn 2000; Saad-Filho 2005). The neoliberal tenets calling for deregulation of labor markets, reduction of social public expenditures, reduction in the welfare state, and the privatization of services all contribute to an increase in inequalities within countries (Navarro 2007). Neoliberalism also affects income inequality indirectly by reinforcing a class structure and hierarchy and increasing relative poverty within a society (Coburn 2004). Navarro proposed that increased neoliberalism increased income

inequality through the deregulation of labor markets, which reduced the number of individuals active in the labor force (2006).

My study failed to find a direct connection between neoliberalism and income inequality, across both the aggregate dataset and the stratified datasets. This result may be due to the fact that the relationship between neoliberalism and income inequality in OECD countries previously studied was based largely on relative poverty (Coburn 2004). The countries within my data set, with higher levels of absolute poverty and lower levels of income inequality, would not observe as dramatic of changes in the level of income inequality as high-income countries did when neoliberal policies were implemented.

In addition to the relationship between neoliberalism and income inequality, overwhelming evidence has indicated that income inequality is detrimental to the health outcome of a society across a wide range of health indicators (Kawachi and Kennedy 2000; Elgar 2010). Kawachi and Kennedy reviewed three published multi-level studies linking income inequality with health outcomes and found that they all verified this relationship (1999). This trend continued to be confirmed even within cross-national studies that included both poor and rich countries (Kawachi 2000). Countries with the smaller differentials between the richest and the poorest are the ones with higher life expectancy (Wilkinson, 1992). These effects of income inequality may be mediated by a number of variables including underinvestment of social services and goods (Kawachi and Kennedy 1999). It can also lead to decreased social cohesion and social capital within a society, leading to increased social conflict (Kawachi and Kennedy 1999).

Overall, our reproductive health outcomes followed this trend. Income inequality was the greatest predictor for the reproductive health outcomes out of all four moderators that were

tested, and it was consistently negatively correlated with most of the tested health outcomes. The results also verified the connection between income inequality and the top quintile-bottom quintile ratio for the health indicators. Therefore, income inequality is also related to increasing differences in reproductive health outcomes between a country's richest and poorest.

However, there were a few exceptions within my data analysis that yielded results inconsistent with the previously mentioned literature. Although there is a relationship between income inequality and the reproductive health outcomes, results indicate that income inequality improves some reproductive health outcomes rather than making them worse (Table 7). However, this relationship was observed amongst countries within the low-income group. Therefore, I infer that the corresponding GDP is a confounding variable that dramatically improves the health outcomes. Since GDP corresponds with income inequality, this may create the illusion that income inequality is correlated with "improving" health outcomes. Additionally, this observation was made in an isolated income group, where the data has been segmented. This could also mislead conclusions based on a pattern that do not exist when analyzing the aggregate data.

Conclusion

Many contemporary scholars in economic and developmental research would argue that the use of neoliberalism in academia within the past two decades has become conflated with globalization and capitalism, and it has become a generalized concept that has taken the blamed for problems in developing countries without providing any concrete solutions (Ferguson 2009). As the literature on neoliberalism exploded and countless theories were developed in an attempt to understand the far-reaching effects of neoliberalism, the challenges of testing these theories and ideas began to emerge. Yet, the main goal of my study was to do just that and quantifiably test the relationships that have been proposed. However, I went one step further and attempted to verify these relationships across a group of countries that are often not the focus of quantitative analysis related to neoliberalism: low- and middle-income countries.

The goal of this study was to understand if and how neoliberalism affects reproductive health. It was found that neoliberalism was related to improved maternal mortality rates, similar to previous cross-national data analyses (Tracy 2009; Grubel 1998; Esposto and Zaleski, 1999). However, it is not associated with improving any other reproductive health outcomes for women, specifically in family planning indicators. Also consistent with previous theories, it was also found that neoliberalism is correlated with increasing reproductive health inequality, as indicated by the number of stillbirths, supporting the hypothesis that neoliberalism is connected to the exacerbation of health inequality (Collins et al. 2016).

Once the results between neoliberalism and reproductive health and its inequalities were verified, my next goal was to test whether the moderators that have been proposed for high-income countries, apply to low- and middle-income countries. The moderators tested in this study showed no correlation, meaning that the existing literature about the pathways in which neoliberalism affects population health are not generalizable to all countries. This indicates an overwhelming need for further research, not only into how neoliberalism and structural adjustment programs affect population health within low- and middle-income countries, but also the pathways in which they are occurring. Future research must ensure that proposed models are supported by empirical evidence.

Although this study chose to focus on neoliberalism from a more global scale, country-level, qualitative studies on neoliberalism are just as essential for our continued understanding of such a complex phenomenon. However, in order to understand such a theoretical concept, it must be grounded in quantitative research. To continue studying neoliberalism effectively, it must be examined from as many angles as possible. The study of neoliberalism cannot overlook historical, political, and socioeconomic contexts, and it would be a grave mistake to assume so. Neoliberalism is still embedded within the world we live today. Its effects can be observed more heavily in certain parts of the world than others. However, that does not mean that it does not exist, or that it should be discounted just because it takes a different form or has a different name. By no means should neoliberalism be considered the only determinant of a concept so vastly complicated and dynamic as population health. However, by continuing to study larger politico-economic determinants, such as neoliberalism, it ensures we have a comprehensive perspective when developing public policies that can have long-lasting global effects.

Appendix

Country	World Bank Code	Year	Income Level	GINI	Total Health Expenditure % of GDP	ODA per capita (US$)	Fraser Inst. EFW	Heritage IEF	GFR	GFR Div	UMC	UMC Div	UNFP	UNFP Div	SB	SB Div	ANC	ANC Div	MMR
Albania	ALB	2008	Upper middle	30.0	5.87	123.25	7.2	62.4	46	0.67	10.6	1.35	8.90	0.62	6	0.50	98.1	1.02	
Angola	AGO	2011	Upper middle	42.7	3.38	8.78	5.1	46.2	219	0.56							74.4	2.22	
Armenia	ARM	2010	Lower middle	31.1	4.56	115.50	7.6	69.2	61	0.83	27.2	1.76	8.40	0.70	8	0.00	99	1.00	
Azerbaijan	AZE	2006	Upper middle	24.2	6.17	24.33	6.1	53.2	66	0.65	14.3	1.88	9.60	0.66	37	2.00	79.2	1.75	
Bangladesh	BGD	2014	Lower middle	32.1	2.82	15.20	6.4	54.1	90	0.70	54.1	0.96	12.60	0.00	177	0.51	63.9	2.53	
Benin	BEN	2011	Low	43.4	5.37	68.79	6.1	56.0	175	0.67	7.9	2.59	26.00	0.82	80	1.09	86	1.41	0.77
Bolivia	BOL	2008	Lower middle	51.4	5.00	65.40	6.1	53.1	121	0.32	34.6	2.06	13.90	0.22	98	0.52	90	1.23	0.31
Brazil	BRA	1996	Upper middle	59.9	6.71	1.63	4.7	48.1	89	0.33	70.3	1.38	8.50	0.25	44	0.09	88.5	1.35	0.15
Burkina Faso	BFA	2014	Low	35.3	4.96	63.67	6.0	58.9	189	0.57	15	4.73	20.40	0.00					0.68
Burundi	BDI	2012	Low	33.4	8.21	51.49	5.3	48.1	201	0.76	17.7	1.81	20.20	0.00			99.2	1.01	0.97
Cambodia	KHM	2014	Lower middle	30.8	5.68	52.15	7.2	57.4	98	0.61	38.8	0.87	8.50	0.50	42	1.00	96	1.09	0.15
Cameroon	CMR	2011	Lower middle	44.7	3.96	28.95	6.3	51.8	180	0.48	14.4	10.71	17.50	0.54			84.2	1.75	1.33
Chad	TCD	2014	Low	43.3	3.62	28.58	5.1	44.5	230	0.74	5	2.79	18.60	1.03			64.9	1.42	2.06
Colombia	COL	2010	Upper middle	55.5	6.76	14.69	6.5	65.5	74	0.39	72.9	1.09	6.50	0.47	86	0.30	96.5	1.08	
Comoros	COM	2012	Low	55.9	7.11	93.60		45.7	142	0.52	14.2	1.30	20.60	0.54	12	1.00	92.3	1.08	0.24
Congo	COG	2011	Lower middle	48.9	2.79	62.48		43.6	182	0.56	20	3.03	14.30	0.54			85.5	1.53	0.69
Congo Democratic Republic	ZAR	2013	Low	42.1	3.89	35.61		39.6	225	0.61	7.8	5.21	22.40	0.66			88.5	1.20	1.09
Cote d'Ivoire	CIV	2011	Lower middle	43.2	6.42	69.66	5.9	55.4	174	0.46	12.5	2.65	23.50	0.59			90.8	1.17	1
Dominican Republic	DOM	2013	Upper middle	47.1	4.12	14.31		59.7	89	0.46	68.6	1.06	8.50	0.53			99.1	1.00	0.15
Ethiopia	ETH	2011	Low	33.2	6.55	38.87		50.5	161	0.45	27.3	3.71	17.20	0.35	204	0.31	41.8	3.20	1.14
Gabon	GAB	2012	Upper middle	42.2	3.13	45.37	5.5	56.4	144	0.41	19.4	1.84	20.80	0.51			94.5	1.12	0.41

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Gambia	GMB	2013	Low	47.3	6.49	61.74		58.8	185	0.57	8.1	3.60	17.30	0.68	89	0.88	98.9	1.00	0.77
Guatemala	GTM	1998	Lower middle	57.2	3.86	20.96	7.2	65.8	177	0.39	30.9	11.06	18.50	0.27	75	0.38	62.5	2.70	0.26
Guinea	GIN	2012	Low	33.7	5.39	29.20		50.8	176	0.52	4.6	3.83	20.10	0.90			69.1	2.20	1.25
Guyana	GUY	2009	Upper middle	44.6	7.32	230.90	6.4	48.4	94	0.36	40	1.45	19.40	0.52	28	0.00	85	1.47	
Haiti	HTI	2012	Low	60.8	9.88	123.60	6.5	50.7	117	0.34	31.3	0.93	23.70	0.73		0.00	89.6	1.17	0.78
Honduras	HND	2011	Lower middle	57.4	8.57	81.26	7.3	58.6	107	0.42	63.8	1.22	7.70	0.56	102	0.32	96.5	1.05	
India	IND	2005	Lower middle	35.2	4.28	1.64	6.7	54.2	101	0.46	48.5	1.68	10.40	0.44	1105	0.28	73.1	1.83	
Indonesia	IDN	2012	Lower middle	39.5	2.90	0.26	6.9	56.4	88	0.66	57.9	1.05	8.40	0.80	181	0.23	22.2	1.15	0.23
Kenya	KEN	2015	Lower middle	48.5	5.72	59.40	7.2	57.1	137	0.42	53.2	1.98	12.80	0.00			94	1.10	0.51
Kyrgyz Republic	KGZ	2012	Lower middle	27.4	6.97	84.11	6.6		125	0.64	33.7	0.93	12.10	0.76	16	0.20	97.2	1.04	
Lesotho	LSO	2014	Lower middle	54.2	10.62	49.12	6.7	49.5	118	0.41	59.8	1.32	12.60	0.50	74	1.58	95	1.05	1.07
Liberia	LBR	2013	Low	36.5	9.25	124.62		49.3	168	0.43	19.1	1.57	27.70	0.76	70	0.47	95.7	1.09	1.7
Madagascar	MDG	2013	Low	42.7	4.15	21.77	6.7	62.0	155	0.43	29.2	2.07	15.60	0.00			80	1.36	0.81
Malawi	MWI	2014	Low	46.1	11.38	55.72	5.8	55.4	179	0.54	42.2	1.39	20.00	0.00			97.2	1.04	1.33
Maldives	MDV	2009	Upper middle	38.4	9.22	92.22		51.3	82	0.88	27	0.89	26.10	0.94	34	0.88	99.4	1.01	
Mali	MLI	2012	Low	38.9	5.34	61.68	5.8	55.8	214	0.72	9.9	7.06	23.30	0.82	64	1.67	49.1	3.79	0.79
Mauritania	MRT	2000	Lower middle	39.6	5.26	82.41		46.0	148	0.68	5.1	165.0	19.50	0.80			63.9	2.64	1.13
Moldova	MDA	2005	Lower middle	35.4	9.15	47.04	6.8	57.4	55	0.71	43.8	1.40	8.60	1.54	23	0.83	84.8	1.19	0.22
Morocco	MAR	2003	Lower middle	40.7	5.25	19.21	6.2	57.8	81	0.57	54.8	1.11	6.20	0.61	102	0.24	67.5	2.37	
Mozambique	MOZ	2011	Low	45.6	6.23	82.54	5.8	56.8	206	0.55	11.3	10.17	20.80	1.03	127	1.06	90.7	1.16	0.83
Namibia	NAM	2013	Upper middle	61.0	8.53	111.08	6.8	60.3	125	0.40	55.3	1.48	11.70	0.37	39	0.70	96.6	1.02	0.41
Nepal	NPL	2011	Low	32.8	6.73	32.63	6.2	50.1	96	0.40	43.2	1.37	20.90	0.63	53	0.25	73.6	1.85	0.33
Nicaragua	NIC	2001	Lower middle	58.0	5.26	182.51	6.5		117	0.36	66.1	1.41	10.00	0.30	65	0.23	70.1	0.80	
Niger	NER	2012	Low	32.7	6.11	50.44	5.7	54.3	269	0.74	12.2	2.72	14.30	0.74	225	1.08	84	1.32	1.41

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Nigeria	NGA	2013	Lower middle	43.0	3.70	14.55	6.5	55.1	190	0.58	9.8	26.00	12.70	0.66	396	0.53	60.7	3.64	1.05
Peru	PER	2012	Upper middle	45.1	5.18	12.78	7.5	68.7	86	0.41	51.8	1.43	6.40	0.40	71	0.37	96.1	1.16	0.13
Philippines	PHL	2013	Lower middle	43.0	4.56	1.95	7.1	58.2	101	0.32	37.6	1.03	11.20	0.56			95.3	1.12	0.21
Rwanda	RWA	2014	Low	50.4	7.53	91.17	7.4	64.7	142	0.61	47.5	1.11	12.60	0.59	125	0.50	99.1	1.00	0.34
Senegal	SEN	2014	Low	40.3	4.66	75.44	6.4	55.4	167	0.47	20.3	2.75	17.50	0.58	104	0.63	96.1	1.10	0.79
Sierra Leone	SLE	2013	Low	34.0	11.59	72.35	6.1	48.3	169	0.49	15.6	2.29	20.50	0.81	100	0.79	97.5	1.03	1.48
South Africa	ZAF	1998	Upper middle	59.2	8.49	12.24	6.5	64.3	100	0.41	55.1	2.07	12.10	0.28			95.1	0.97	0.15
Swaziland	SWZ	2006	Lower middle	52.3	6.81	31.10		61.4	137	0.50	47.7	1.65	16.50	0.47	35	0.30	96.9	1.03	0.77
Tajikistan	TJK	2012	Lower middle	30.5	6.39	49.51	6.7	53.4	134	0.80	25.8	1.43	15.40	0.75	45	0.45	79.6	1.26	
Timor-Leste	TMP	2009	Lower middle	31.6	1.02	206.45		50.5	175	0.61	21.1	2.19	19.10	0.75	22	0.75	85.7	1.29	0.96
Togo	TGO	2013	Low	46.0	5.12	32.29	6.0	48.8	163	0.58	17.3	1.34	25.50	0.67			49.5	5.85	0.62
Turkey	TUR	2003	Upper middle	42.2	5.34	2.49	6.1	51.9	79	0.49	42.5	1.74	9.70	0.00	47	0.18	80	1.99	
Turkmenistan	TKM	2000	Upper middle	40.8	3.94	7.84		37.6	103	0.62	53.1	0.98	8.10	1.21	46	1.00	98.5	0.98	
Uganda	UGA	2014	Low	42.9	7.22	43.22	7.3	59.9	204	0.57	26	3.08	24.50	0.45			95.6	1.01	0.91
Ukraine	UKR	2007	Lower middle	27.0	6.36	9.04	5.9	51.5	39	0.66	47.5	1.46	6.80	0.56	4	2.00	98.8	1.02	
Vietnam	VNM	2002	Lower middle	37.3	4.70	16.10		45.6			56.7	0.89	6.20	0.58	7	0.25	86.8	1.47	
Zambia	ZMB	2013	Lower middle	55.6	4.99	74.92	7.0	58.7	184	0.43	44.8	1.86	16.70	0.41	180	0.90	95.4	1.08	0.74
Zimbabwe	ZWE	2010	Low	43.2	5.37	50.99	4.5	21.4	150	0.49	57.3	1.21	11.00	0.43	85	1.92	88.5	1.07	1.26

"**ODA per capita (US$)**" = Official development assistance per capita in current US$
"**Fraser Inst EFW**" = Fraser Institute Economic Freedom Index
"**Heritage IEF**" = Heritage Foundation Index of Economic Freedom
"**GFR**" = General Fertility Rate
"**UMC**" = Use of Modern Contraception among Married Women
"**UNFP**" = Unmet Need for Family Planning
"**SB**" =Number of Stillbirth
"**ANC**" = Antenatal Care
"**MMR**" = Maternal Mortality Rate
"…Div" = Quintile ratio for the corresponding reproductive health indicators

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