

"Correlates of International Church Growth and Member Activity, 1997-2017: Multivariate Regression Analysis"

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Background

Whether a faith grows, stagnates, or declines impacts not only its current adherents, but its future influence on individuals and societies. Arguably more than any other factor, long-term growth rates determine whether a faith becomes a major world religion or a footnote to history.

The trajectory of modern societal change has constituted a rising tide that has altered the nature of religious belief for many and dissuaded others from it altogether. Studies increasingly show the decline of mainline churches, a fall in growth rates for outreach-oriented denominations, and growing identification of young people as atheists, agnostics, or “spiritual but not religious.” Even among believers, many have found accommodations in viewing scripture as containing truth rather than necessarily being true. Such discussions are beyond the scope of this presentation. I wish merely to note the challenging facts of contemporary church growth.

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Growth of Christianity

Yet Christianity is gaining on the global stage. Although Islam is growing faster, the Pew Research Center reported that Christianity is expected to grow at a faster rate than the world average.

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Future Prospects

The future of the LDS Church will hinge heavily on growth and retention. Will it grow to become the stone cut without hands to fill the whole earth? Or will it become, as many other religious movements, like a rocket which falls back to earth due to failure to escape the pull of gravity?

In 2017, LDS growth rates fell to their lowest levels since 1937, and convert baptisms dropped to a thirty-year low. The combination of declining birth rates and high attrition among LDS member children has led to natural growth rates falling well below the replacement level. Institutional adjustments, such as lowering the age of mission service, have had little impact. Already, some areas of the world have experienced stable or declining church attendance for years despite nominal increases in church membership. In contrast, the Seventh-day Adventist Church, which started the 20-year study period roughly on par with the LDS Church, has far outpaced it. In 2016, the SDA Church baptized 1.2 million and net membership increased by 882,000; a record 1.27 million were baptized in 2017.

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Membership Distribution

LDS membership is heavily concentrated in the low-population growth nations of North America, Europe, and Oceania. Over 70% of full-time LDS missionaries come from a single nation, the United States. The decline in retention of U.S. children raised in the church from ~50% in prior generations to ~25% among millennials¹ reported by Jana Riess has implications for global growth.

What about Latin America? Latin American population growth rates are below the world average. These nations have been “in the red” across Protestant denominations throughout the 20th and early 21st centuries as net importers of missionaries and resources. They have struggled to achieve local self-sufficiency despite large-scale investment of foreign religious capital and manpower. Questions of causality are matters for cultural anthropologists regarding which I offer no hypothesis. I simply observe that this experience has been shared across many Evangelical and missionary-oriented denominations.

LDS membership is very low in Christianity’s vibrant contemporary growth centers, including much of Sub-Saharan Africa and parts of Asia and the Middle East, and in nations like India which have been net missionary exporters for other faiths. Uneven LDS membership distribution, which we may term low diversification, decreases overall growth while increasing risks.

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Potential Correlates Examined

The question of which factors are correlated with growth has been a topic of much discussion. Putative correlates of church growth include both extrinsic or demand-side factors of the host society and intrinsic or supply-side factors. Today, I will explore a few of many possible factors.

Extrinsic (demand-side) factors: Human Development Index (HDI), Gross Domestic Product (GDP) per Capita, Migration Rates, Fertility rates*, Population Growth Rates*, Urbanization (%)

Intrinsic (supply-side) factors: Member Activity Rate, Members per Congregation, Active Members per Congregation, National Outreach (%)

Hybrid factors **Jehovah’s Witness Growth, **JW hours per baptism

¹ Riess, Jana (2019), *The Next Mormons*, Oxford University Press. 339 p.

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Data and Sources

Data were obtained from sources as noted.

Sources include the Cumorah database and from official or quasi-official sources, including prior years' LDS Church Almanacs, the lds.org website, annual Jehovah's Witness yearbooks, adventiststatistics.org, the United Nations. National average member activity rates were obtained from *Reaching the Nations*.

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Methodology

Growth rates were calculated as a compounded annualized percentage over the most recent twenty-year period (1997-2017) to provide a stable indicator of long-term growth and mute fluctuations from short-term policies and events. A thirty-year period (1987-2017) was also evaluated. Results were generally similar. Today I will present results for the past twenty years, as earlier data are made less relevant by official policy changes, deceleration in church growth rates, and fewer countries with available data. Annual membership growth rates were evaluated as the dependent variable by regression analysis against the panel of putative influencers.

Data were evaluated for the presence or absence of correlation with church growth, the direction, magnitude, and statistical significance of the correlation, and the percentage of variation in church growth rates potentially linked to the influencing variable. Minitab statistical software was used for multiple regression analysis, whereas single regression was evaluated with Microsoft Excel. Statistics were not rounded but were truncated at two decimal places, or three for those of value less than one.

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Limitations

I offer no definitive answers; only items for further study. Statistical correlation does not prove causality. Any potential causative mechanism requires theoretical elucidation and practical validation. Correlations from the years and data studied may not demonstrate the same effect for different years and conditions. The engagement of additional indicators, including correlations with layered data and follow-up surveys and interviews, can help to mitigate but not eliminate these concerns.

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Data Granularity

The low resolution of large-scale sociological data may not well inform us what these numbers actually represent. Each data set contains its own definitions, assumptions, and biases. Ideally, we would like to know what is going on at the individual level. But even self-reported data may be subject to social acceptability bias, recall bias, and other biases. Individuals who answer sincerely may lack insight into their motivations and decision-making. Their statements may convey perceptions without providing a final truth.

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Congregational vs. Membership Growth

Which indicator best reflects LDS growth remains an open question. Here, I will focus primarily on growth in official membership numbers in keeping with accepted conventions and published scholarship. However, the significance of LDS membership numbers is limited due to the lack of any obligatory relationship between official membership, participation, and self-identified religious preference. LDS membership rolls have tended to accrue many nonparticipating members, resulting in a gross overstatement of church growth.

A plot of congregational versus member growth in nations around the world over the past 20 years leads us to a simple regression formula. The congregational growth rate is approximately equal to 85% of the member growth rate, minus two percent. This correlation accounts for approximately 70% of variance between congregational and membership growth. In other words, a 2% increase in annual membership correlates on average with no growth in congregations and, to the extent I have been able to ascertain from other data, with no increase in average church attendance. This differs from faiths like the Jehovah's Witnesses and Seventh-day Adventists, which experience near parity between membership and congregational growth.

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Challenges in Evaluating Membership Statistics

Evaluation of LDS membership statistics requires the exposition of several difficulties, including:

Asymmetric information: Those reporting the data know what they represent. We do not.

Principal-agent Problem: Interests of missionaries and mission leaders may not be aligned with the interests of prospective converts or the Church.

Moral Hazard. Itinerant missionaries lack accountability and are not vested in the success of local congregations. Others bear the cost of their risk-taking

Perverse Incentives: system flaws incentivize short-term behaviors at the expense of long-term growth

Adverse Selection Bias: the singular focus on baptismal numbers without regard to convert retention has rewarded missionaries and leaders willing to cut corners, sacrifice quality and ethics, and "game the system" at the expense of real growth

Unintended Consequences

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Statistical Terminology

Multiple R: Correlation coefficient of relationship strength. 0=no relationship, 1 = perfect relationship.

R squared: how many points fall on the regression line and are “explained” by the x-value.

Observations: number of countries evaluated

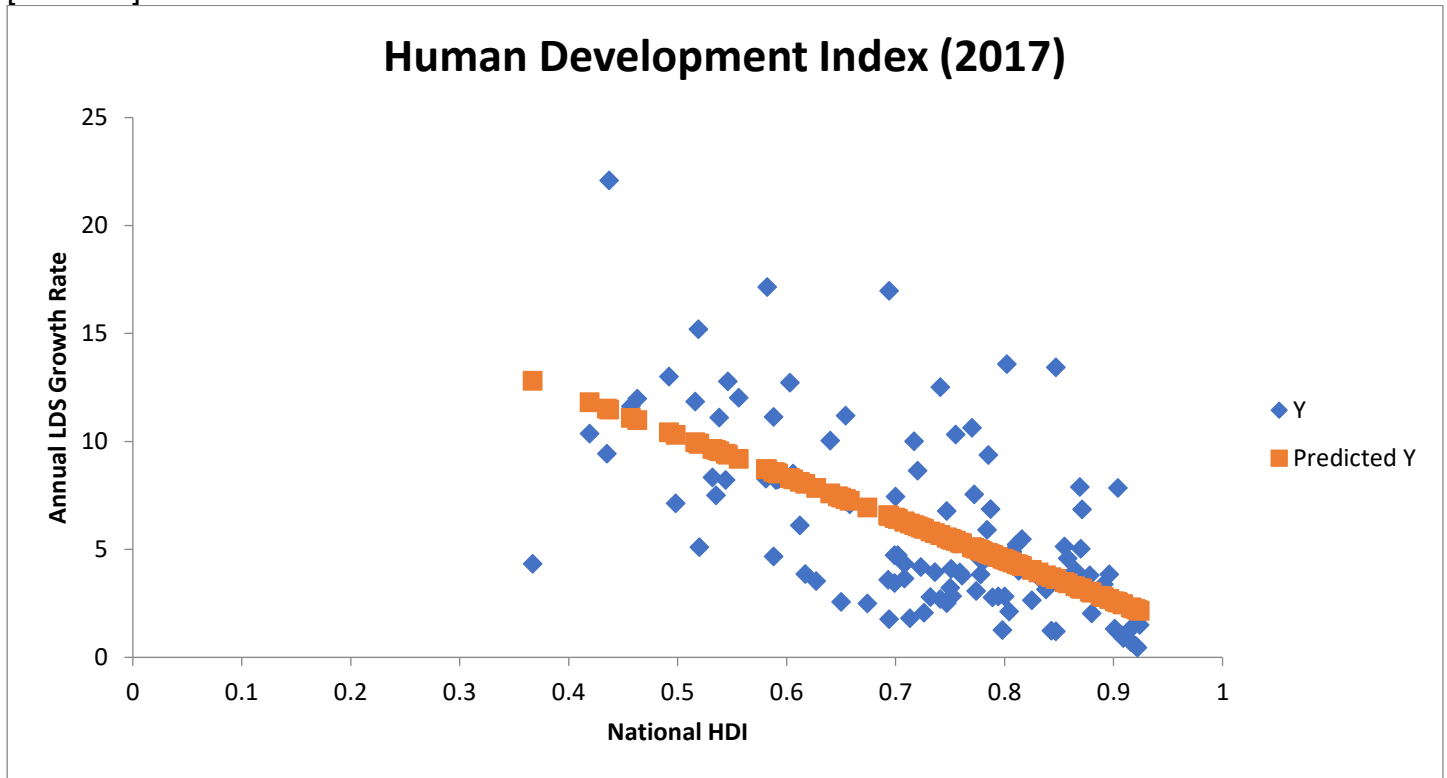
X-variable coefficient: magnitude of relationship. A change of one unit in the independent (variable) is expected to correlate with a change in annual church growth rates by this amount.

P-value: an indicator of statistical significance. The lower the value, the less likely the results are to have been obtained by chance. A threshold of $p \leq 0.05$, or a 5% likelihood of chance association, is used for most statistical analysis.

Confidence interval: the range between upper and lower effects expected to contain the “true value” of the relationship magnitude within the range of statistical significance.

The “R-squared” value is most relevant to determine the strength of the correlation. In this presentation, I have included a full range of statistical indicators. **Because the analysis involves a complete data set and is not sampled, certain statistical concepts, such as the p-value and “confidence interval,” do not apply.** I have included these indicators here as a **hypothetical to evaluate a potential predictive effect as if the data represented a sample from a larger set.** Certain items would need to be removed, or at least qualified clearly with this caveat, if submitted for publication.

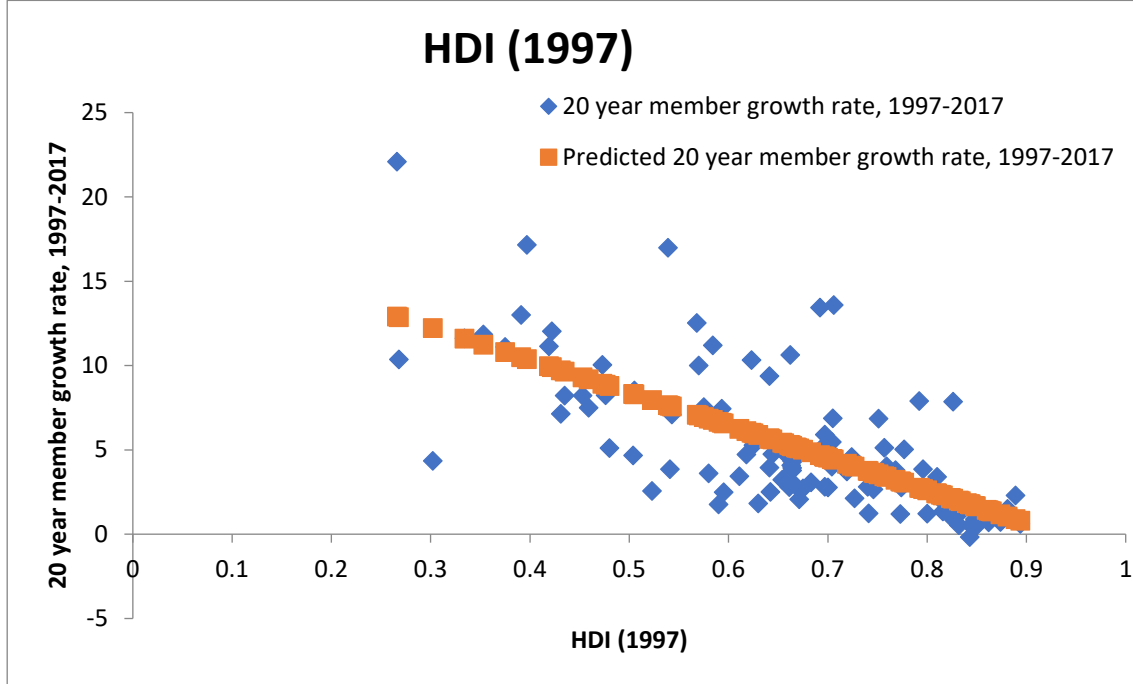
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Indicator	Result	Explanation
Observations	121	Countries with data
Multiple R	0.645	Correlation coefficient (strength of relationship)
R Squared	0.417	41% of church growth variability explained by HDI
p-value	1.24×10^{-15}	Highly statistically significant, unlikely to be random
X coefficient	-19.13	An increase in HDI of 0.1 is expected to correlate with a 1.9% decrease in annual church growth rates.
Lower and upper 95% confidence interval	-15.03 to -23.23	The true magnitude of correlation between HDI and annual church growth rate is expected to fall in this range

Human development index is a composite of dimensional indices for gross national income, education, and life expectancy. HDI demonstrates the strongest (negative) correlation with church growth of any factor evaluated. Lower birth rates, urbanization, and secularization with generally lower religious participation accompany high HDI levels.

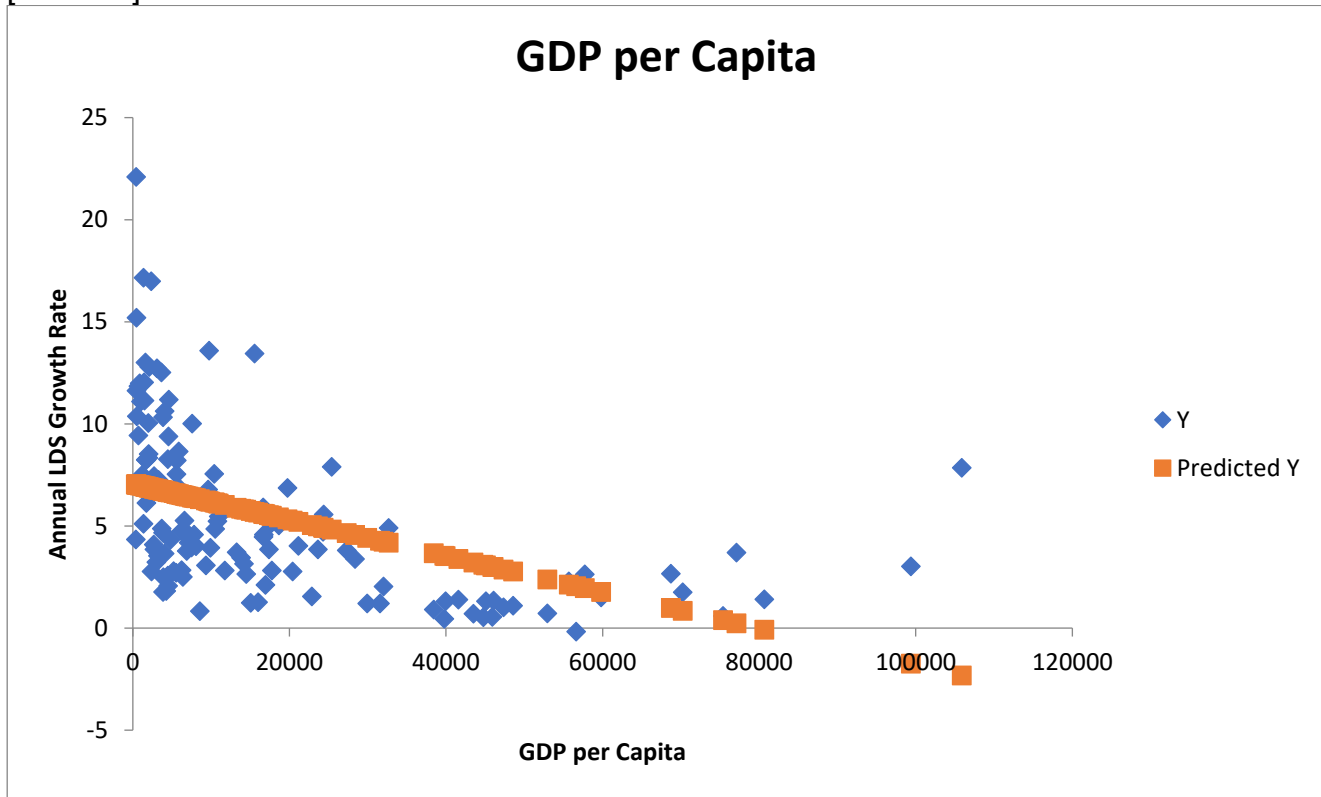
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Indicator	Result	Explanation
Observations	102	Countries with data
Multiple R	0.702	Correlation coefficient (strength of relationship)
R Squared	0.493	49% of church growth variability explained by HDI
p-value	1.85×10^{-16}	Highly statistically significant, unlikely to be random
X coefficient	-19.29	An increase in HDI of 0.1 is expected to correlate with a 1.9% decrease in annual church growth rates.
Lower and upper 95% confidence interval	-15.41 to -23.16	The true magnitude of correlation between HDI and annual church growth rate is expected to fall in this range

The 1997 human development index demonstrates almost identical magnitude of correlation as the 2017 HDI, but offers higher explanatory power, accounting for 49%, or nearly half, of all variation in LDS membership growth. However, fewer countries had data available.

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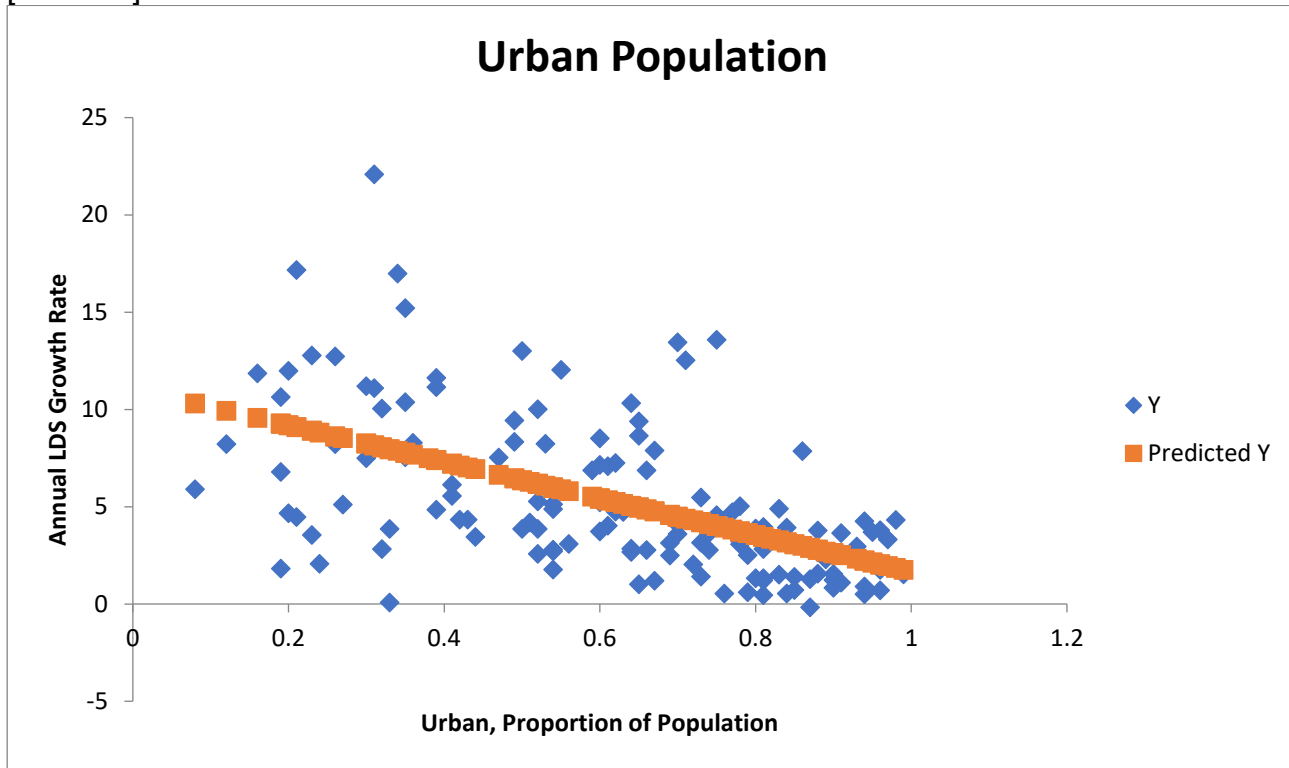


Indicator	Result	Explanation
Observations	128	Countries with data
Multiple R	0.467	Correlation coefficient (strength of relationship)
R Squared	0.218	Fraction of church growth variability explained
p-value	2.63×10^{-8}	Highly statistically significant, unlikely to be random
X coefficient	-8.9×10^{-5}	An increased in GDPPC by \$10,000 is expected to correlate with a reduction of 0.89% in annual church growth rates
Lower and upper 95% confidence interval	-0.00012- -0.000059	The true magnitude of correlation between GDPPC and annual church growth rate is expected to fall in this range

Gross domestic product per capita negatively correlates with church growth at a highly significant level ($p=2.63E-8$).

(Although Luxembourg, which has a high GDP per capita, would appear to be an outlier, the extensively high growth rate reflects small numbers and is likely to regress to the mean over longer periods. Official membership numbers report the round number of 100 members on four consecutive reports from 1991 to 1997, followed by an unexplained jump to 155 with subsequent further increases. The precision of these initial figures is suspect.)

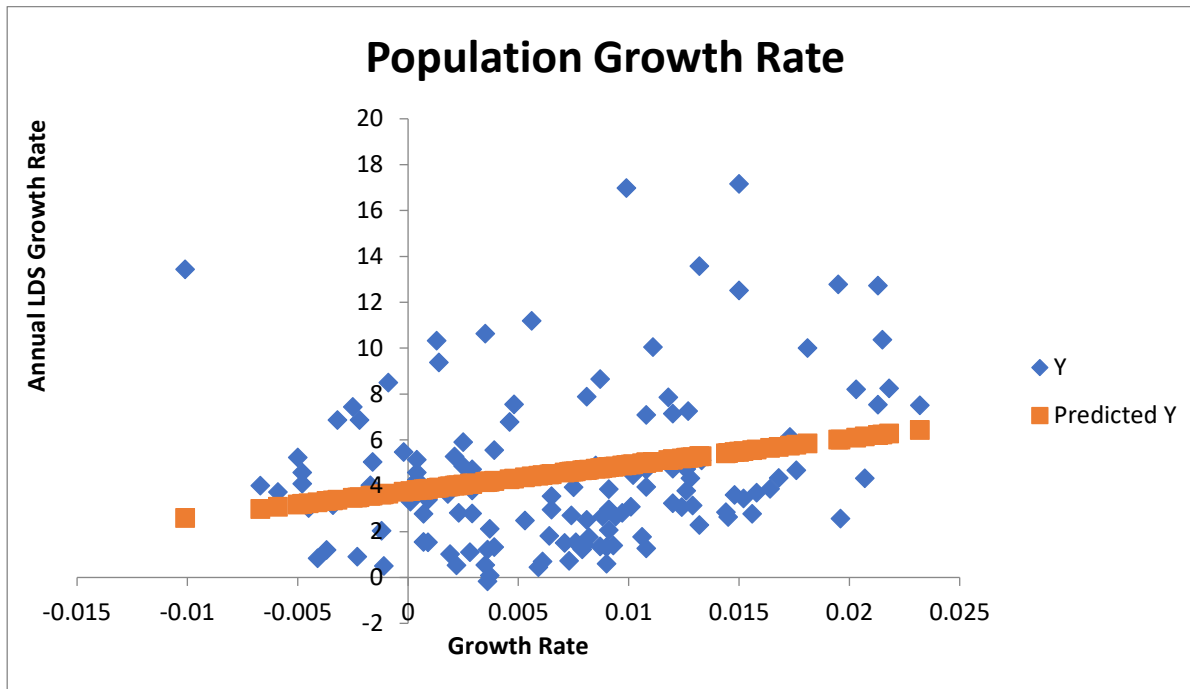
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Indicator	Result	Explanation
Observations	137	Countries with data
Multiple R	0.545	Correlation coefficient (strength of relationship)
R Squared	0.297	29.7% of church growth variability explained
p-value	5.69×10^{-12}	Very high statistical significance, unlikely to be random
X coefficient	-9.4	A change in 10% in urbanization is expected to correlate with a 0.94% decline in annual church growth rates
Lower and upper 95% confidence interval	-6.94- -11.86	The true magnitude of correlation between urbanization and annual church growth rate is expected to fall in this range

Increasing urbanization is associated with a moderate decrease in membership growth rates. Further analysis demonstrate that urbanization is not an independent predictor when controlled for HDI.

It seems unlikely that urbanization itself is the principal cause of this negative correlation. Most LDS congregations worldwide are located in urban areas and the vast majority of mission outreach occurs in cities. Rural areas worldwide are overwhelmingly unreached. These data do not suggest that rural dwellers are necessarily more receptive to LDS outreach. Cities offer advantages in transportation, infrastructure and more ready access to large populations. Rather, more church growth occurs in cities of nations with low urbanization than in cities of nations with high urbanization. It is likely that rather than being a cause of low church growth, urbanization is a marker for high level of human development, income, and education, and lower population growth rates, which are negatively correlated with church growth.

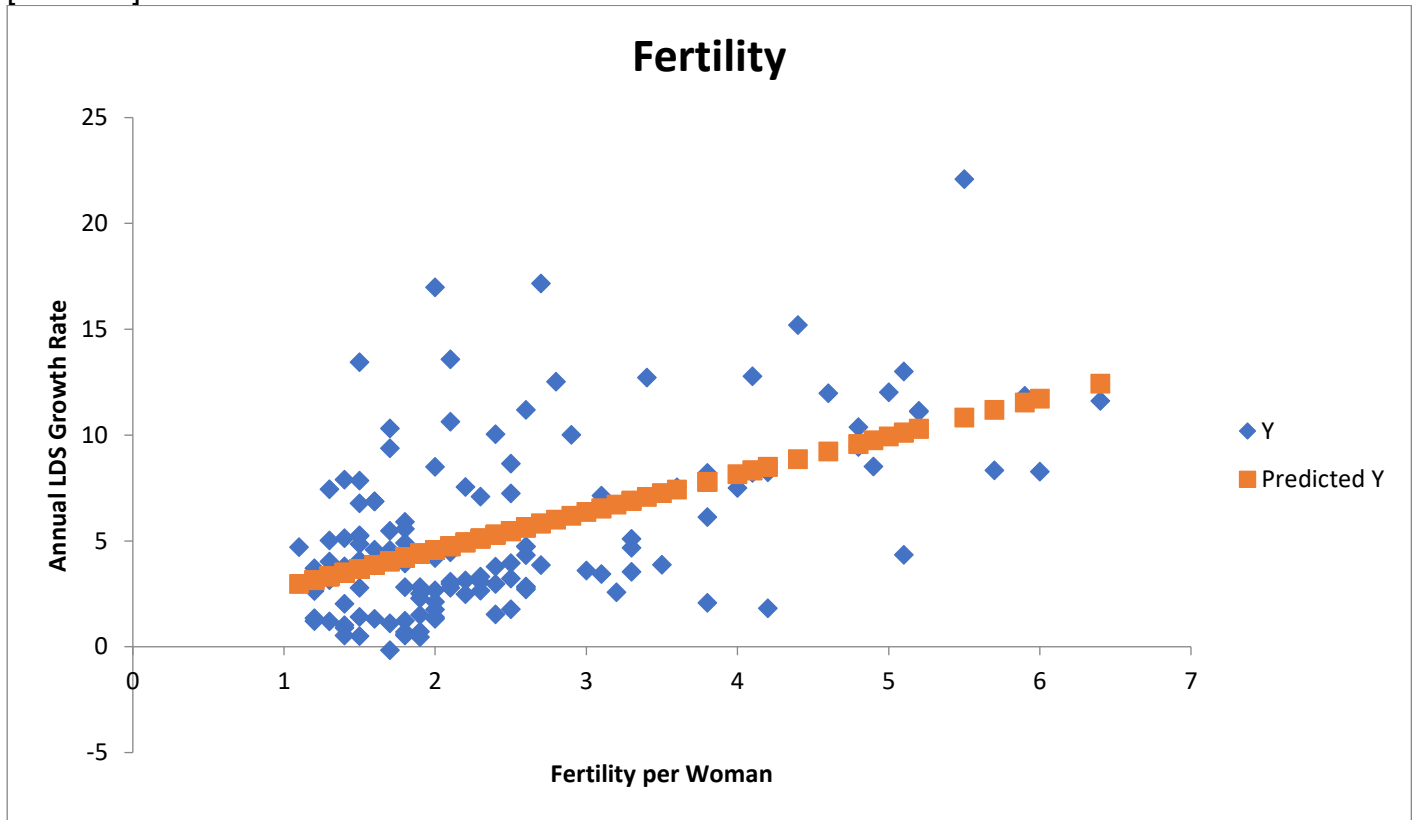


Indicator	Result	Explanation
Observations	128	Countries with data
Multiple R	0.239	Correlation coefficient (strength of relationship)
R Squared	0.057	Fraction of church growth variability explained
p-value	0.0065	Statistically significant, unlikely to be random
X coefficient	1.15	An increase in population growth rate of 1% (.01) is expected to correlate with a 1.15% percentage change in annual church growth rate
Lower and upper 95% confidence interval	32.8-197.8	The true magnitude of correlation between population growth and annual church growth rate is expected to fall in this range. This range is very wide, leaving much uncertainty about the magnitude of relationship.

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A 1% increase in population growth correlated with just over a 1% increase in church growth. The degree of correlation is low, explaining just over 5% of observed variation in church growth rates, and is not predictive when adjusted for HDI.

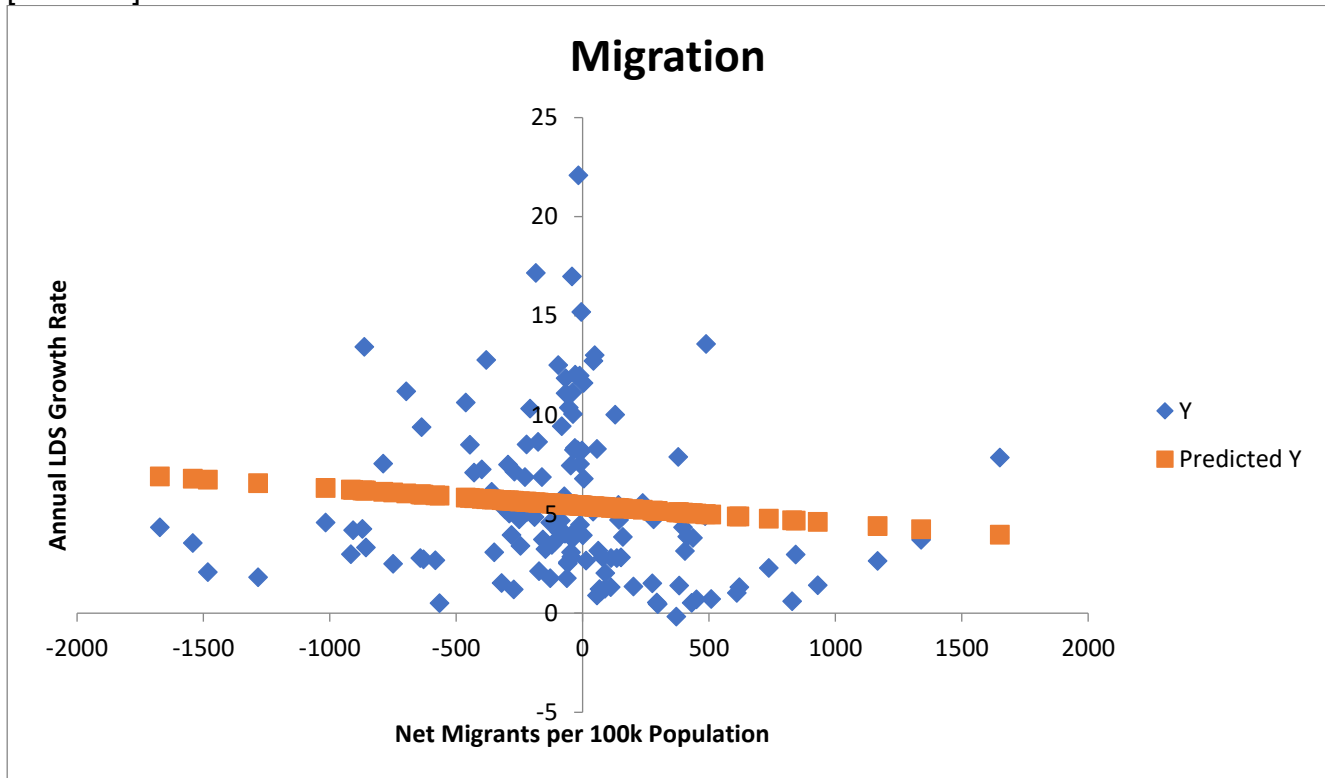
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Indicator	Result	Explanation
Observations	131	Countries with data
Multiple R	0.533	Correlation coefficient (strength of relationship)
R Squared	0.285	28.5% of church growth variability correlates to fertility
p-value	5.12×10^{-11}	Statistical significance, or chance correlation is random
X coefficient	1.78	A change in fertility rates of 1 more child per woman is expected to correlate with a 1.78% increase in annual church growth rates
Lower and upper 95% confidence interval	1.29-2.27	The true magnitude of correlation between fertility and annual church growth rate is expected to fall between 1.29 and 2.27

Increasing fertility has a moderate positive correlation with annual LDS growth. The correlation of fertility rate with annual LDS growth is stronger than national population growth rates, but is not an independent correlate when adjusting for HDI.

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Indicator	Result	Explanation
Observations	131	Countries with data
Multiple R	0.105	Correlation coefficient (strength of relationship) very weak
R Squared	0.011	Only 1% of church growth variability potentially explained
p-value	0.229	No significant correlation, likely random chance
X coefficient	-	N/A – not statistically significant
Lower and upper 95% confidence interval	-	N/A – not statistically significant

For much of the past two decades, half or more of LDS growth in large Western European nations has occurred among immigrants. Immigrants are also disproportionately represented among converts in large US urban centers. However, regression analysis demonstrates that net migration per 100k population is not correlated with national membership growth rates at a level of statistical significance ($p=0.23$). These nations already have very low baseline church growth rates. Even with the addition of migrant converts, growth rates remain low.

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Of these demand-side factors, the initial (1997) HDI was more predictive than final (2017) human development index. GDP per capita, Fertility, Population Growth Rates, and Urbanization correlate with LDS membership growth, but are NOT independent predictors when adjusted for Human Development Index. Net migration rates did not correlate with church growth.

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“Building from Centers of Strength”

“Building from Centers of Strength” is the official LDS policy implemented in approximately 1993 which focuses on efforts to strengthen old congregations while limiting outreach to new areas. “Centers of Strength” posited that achieving a “critical mass” of members and implementing full range of church programming in each congregation would improve convert retention, member activity, and growth.

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Those familiar with the missiological literature will recognize the core claims of the “Building from Centers of Strength” paradigm as exceptional. The literature of the past six decades has consistently found the contrary. New congregations typically grow faster than old ones, and establishing new congregations is seen as a key to growth. Congregation size has little effect on growth. If anything, small congregations may modestly outperform very large ones at outreach.

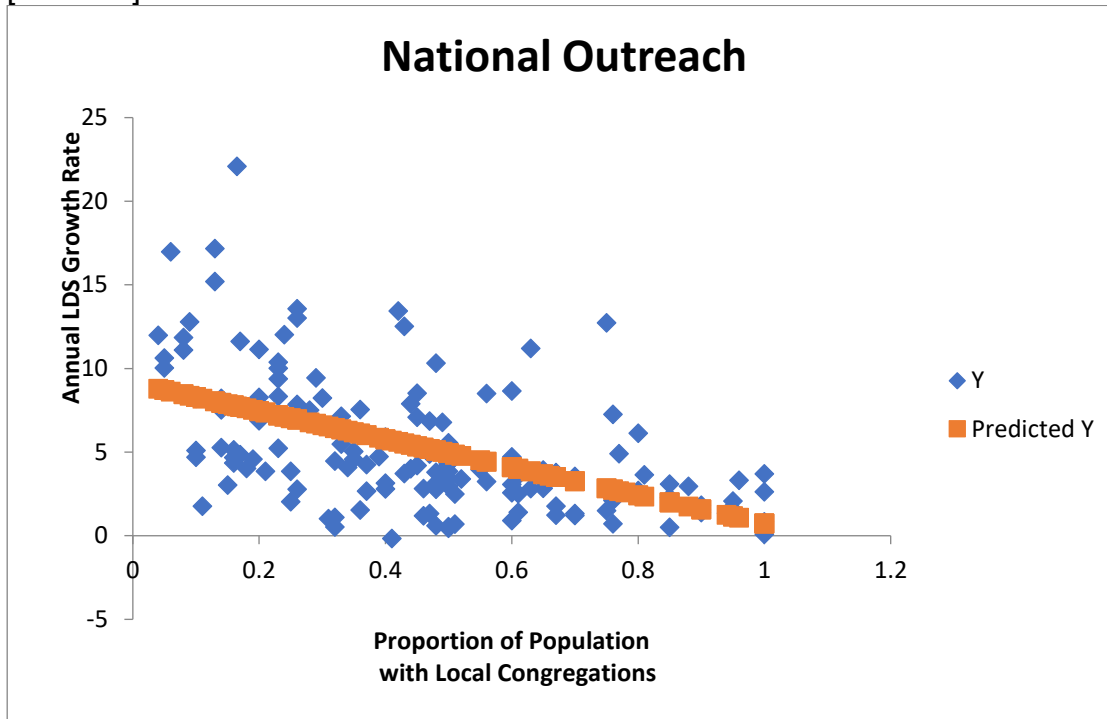
One also wonders whether the Centers of Strength theory may conflate elements of cultural Mormonism with the gospel. Is it really true that having a large congregation which is able to implement a fuller program of the Utah cultural experience is likely to achieve greater growth and member retention than a small, vibrant congregation? Do small international congregations somehow have less of the gospel?

The assumptions imposed by Utah-based leaders, such as the need to construct costly standardized chapels throughout the developing world, carry heavy opportunity costs which stifle expansion into new areas, as well as denying nascent congregations any prospect for self-sufficiency.

I recall being puzzled in the early 2000s that six missionaries were assigned to my ward in Galveston, Texas, whereas not a single missionary was assigned to entire nations like Kyrgyzstan during a time of wide religious freedom, ostensibly due to lack of manpower. The LDS Church did not enter areas with many interested people at a time when other denominations built up large followings. Area leaders at the time expressed their belief that the doors would stay open indefinitely and that they could enter at their leisure. After failing to enter during the years of broad religious freedoms, the Church now lacks the membership to meet recently-imposed registration requirements and finds itself “locked out” of Kyrgyzstan and several other nations.

I was therefore curious to evaluate several of the “Centers of Strength” paradigm’s exceptional assertions with regression analysis.

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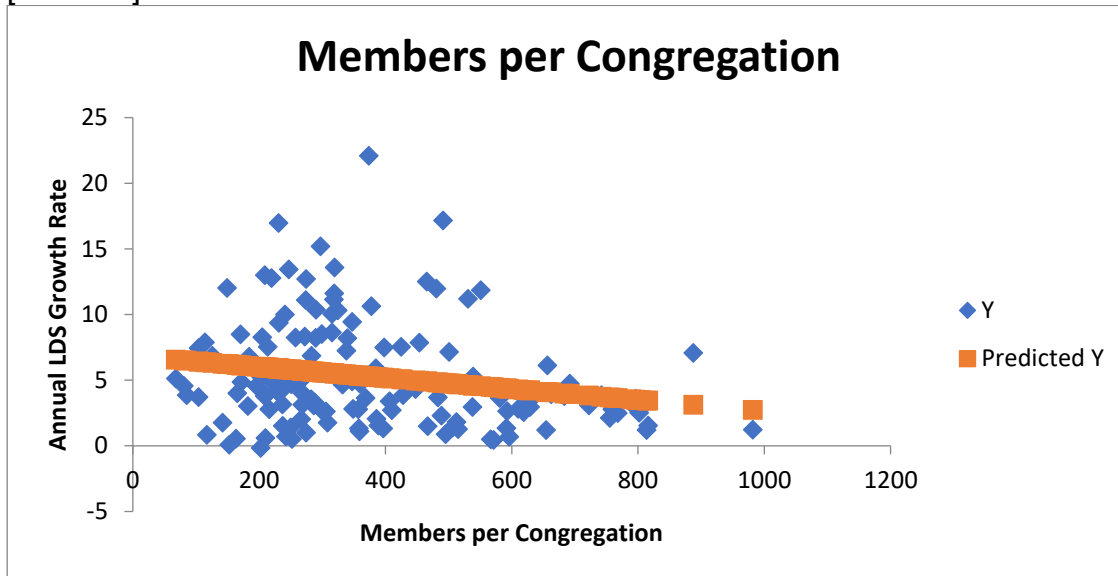


Indicator	Result	Explanation
Observations	143	Countries with data
Multiple R	0.532	Correlation coefficient (strength of relationship)
R Squared	0.283	28.3% of church growth variability explained by extent of national outreach
p-value	8×10^{-12}	Statistical significance, or chance correlation is random
X coefficient	-8.38	A 12% increase in national outreach is expected to correlate with a 1% decrease in annual church growth rates
Lower and upper 95% confidence interval	-6.16 - -10.61	The true magnitude of correlation between national outreach and annual church growth rate is expected to fall in this range (decline of 0.61-1.06% in annual growth rates per 10% increase in national outreach.)

National outreach is defined as the proportion of the population living in an area with a nearby LDS congregation. Regression analysis demonstrated a moderate negative and highly statistically significant correlation with national LDS growth rates. The analysis implies a decline of about 1% in church growth rates for every 12% increase in national outreach.

This finding is consistent with the principles of market saturation and diminishing marginal returns. Allocating modest numbers of missionaries and resources to unreached and under reached areas, appears to be more impactful than increasing outreach in areas with a large church presence. In the language of economics, diversification decreases risks and improves average long-term returns compared to “putting most of one’s eggs into a few baskets.”

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Indicator	Result	Explanation
Observations	143	Countries with data
Multiple R	0.206	Correlation coefficient (strength of relationship)
R Squared	0.042	Only 4% of church growth variability explained by members per congregation
p-value	0.0016	Statistically significant, correlation unlikely to be random
X coefficient	-0.00418	An increase of 240 members per congregation is expected to correlate with a 1% decrease in annual church growth (-0.00418% per additional member)
Lower and upper 95% confidence interval	-.00088 - -.0074	Wide confidence interval range; effect is small (true range could be 1% decrease in church growth per 135 to 1,136 additional members)

What of a “critical mass” of members serving as an impetus to church growth? Regression analysis suggests the opposite. Congregation size is inversely correlated with church growth, although the magnitude of effect is small. As the graph demonstrates, almost all nations with high church growth rates have smaller congregations, whereas only two nations with an average of over 600 members per congregation experienced sustained annual membership growth rates above 5%.

Missiological literature indicates the importance of accessible congregations. As the church has consolidated units and closed many small wards and branches, the increased distance that many members needed to travel to worship has contributed to attrition. From the standpoint of institutional growth, this downside does not appear to have been offset by any real or perceived benefit experienced by members in larger but more distant congregations.

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Convert Retention and Member Activity

Henry Moyle, the architect of LDS quick-baptize programs, dismissed concerns about convert retention. He asked rhetorically: “Is it better to baptize a hundred and retain fifty or to baptize six hundred and retain a hundred?”² More recently, the *Preach My Gospel* program has sent mixed messages.

Moyle’s statement implies that baptism without retention is a costless exercise for both the convert and the congregation. Historian D. Michael Quinn articulated the program’s ethical problems, observing that “even self-imposed ‘baptism goals’ can cause missionaries to engage in exploitation of potential converts.”³

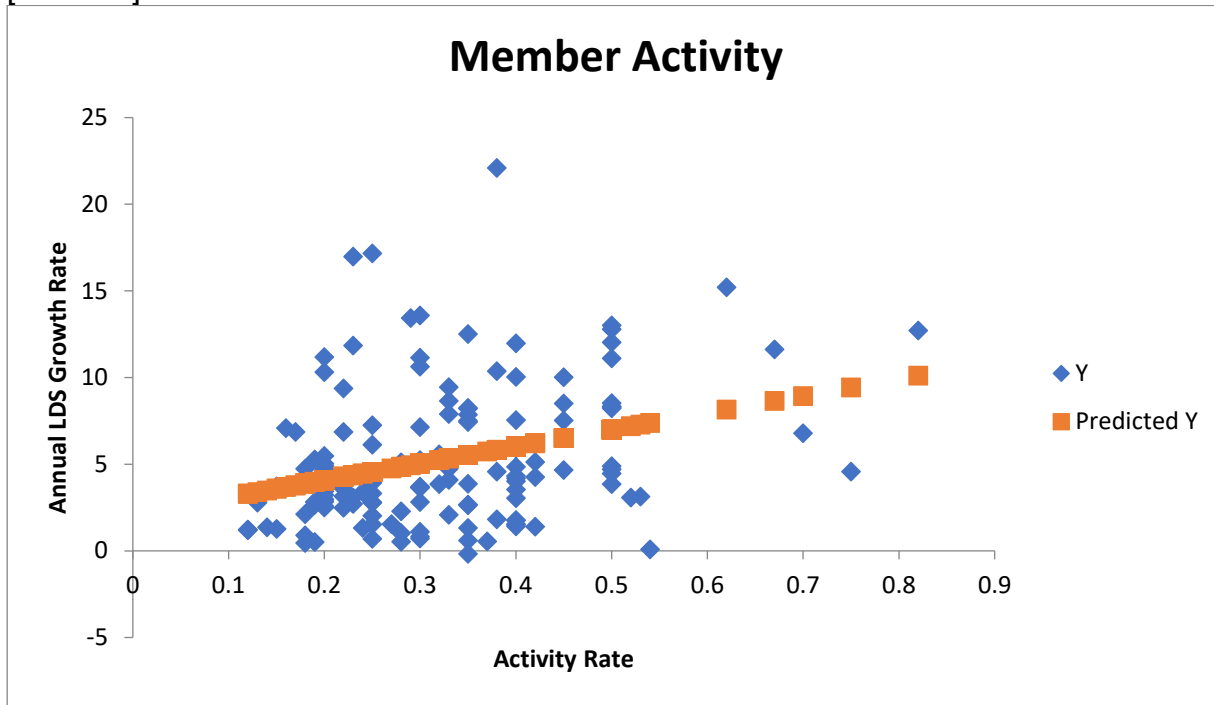
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What of the congregation? I posit a phenomenon I shall call “drag” to reflect the inhibitory effect of inactivity on congregational growth. This represents more than a free-rider effect. A congregation with an unfavorable ratio of actives to inactives dissipates its resources reaching out to disaffected and often hostile nominal members who rarely return, instead of engaging in community outreach. In the words of Rick Warren, it is trying to corral goats instead of feeding sheep. Member trust and enthusiasm for the missionary program is diminished by seeing the large majority of unprepared converts quickly fall away. Members become reluctant to invite their friends or to fellowship prospective converts, and tune out missionary admonitions in favor of activities of lower perceived risk. The lack of credible leadership by example reinforces these behavior patterns. I hypothesize that the drag generated by low-retaining missionary paradigms weighs down future growth far in excess of any alleged benefits.

² Poll, Richard D. *Working the Divine Miracle: The Life of Apostle Henry D. Moyle* (Salt Lake City: Signature Books, 1999), 209.

³ Quinn, D. Michael, “I–Thou vs. I–It Conversions: The Mormon ‘Baseball Baptism’ Era,” *Sunstone*, 16:7/30 (December 1993), p. 41.

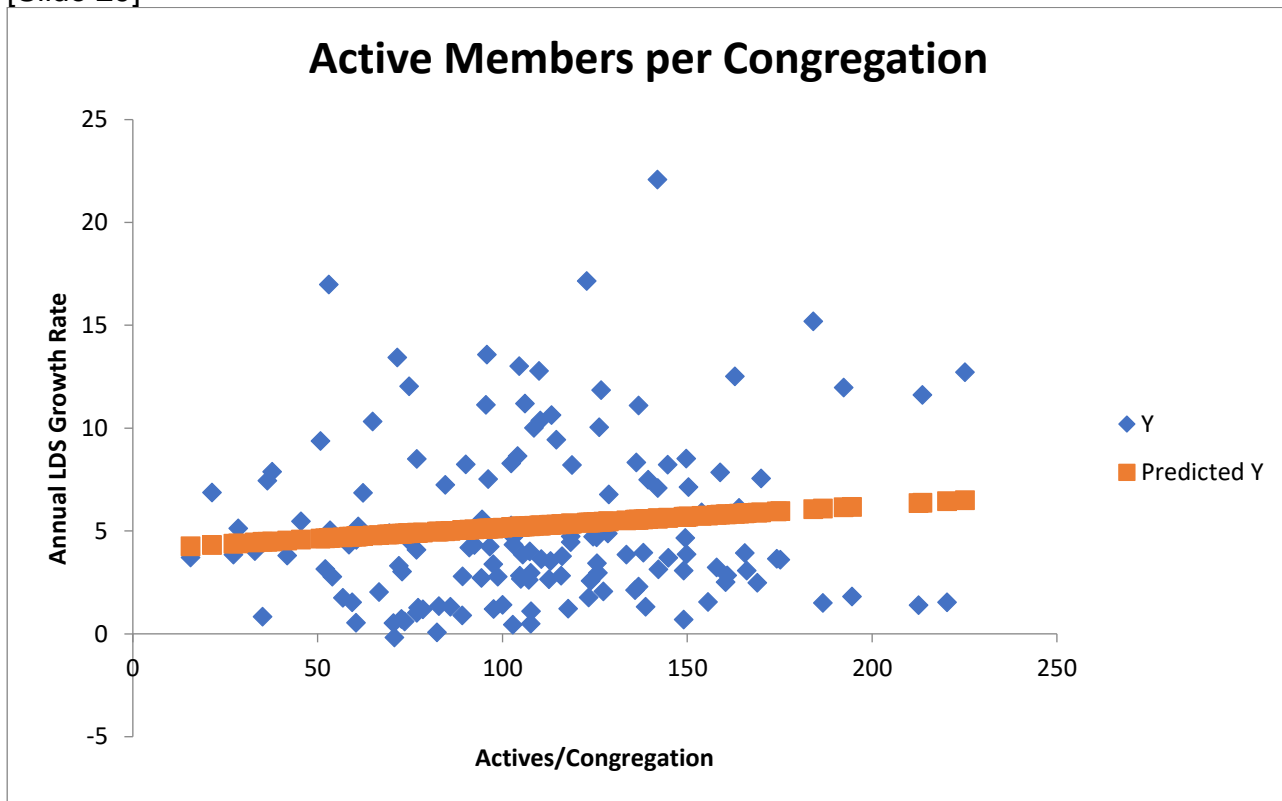
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Indicator	Result	Explanation
Observations	143	Countries with data
Multiple R	0.313	Correlation coefficient (strength of relationship)
R Squared	0.098	9.8% of church growth variability explained by member activity rate
p-value	0.000137	Statistically significant correlation, unlikely to be random
X coefficient	9.72	An increase of approximately 10% in member activity rates is expected to correlate with an increase of 1% in annual church growth rates
Lower and upper 95% confidence interval	4.82-14.62	The true magnitude of correlation between member activity and annual church growth rate is expected to fall in this range

Regression analysis demonstrates a statistically significant correlation between member activity and membership growth rates. The correlation is small but meaningful, with a 10% increase in member activity rate corresponding to an 1% increase in average annual membership growth. These data, of course, do not constitute proof of my hypothesis. But they do suggest that inactivity is not without consequence for the congregation or for long-term growth prospects.

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Indicator	Result	Explanation
Observations	143	Countries with data
Multiple R	0.114	Correlation coefficient (strength of relationship) is very weak
R Squared	0.013	Only 1% of church growth variability potentially explained
p-value	0.17	No significant correlation, likely random chance
X coefficient	-	N/A – not statistically significant
Lower and upper 95% confidence interval	-	N/A – not statistically significant

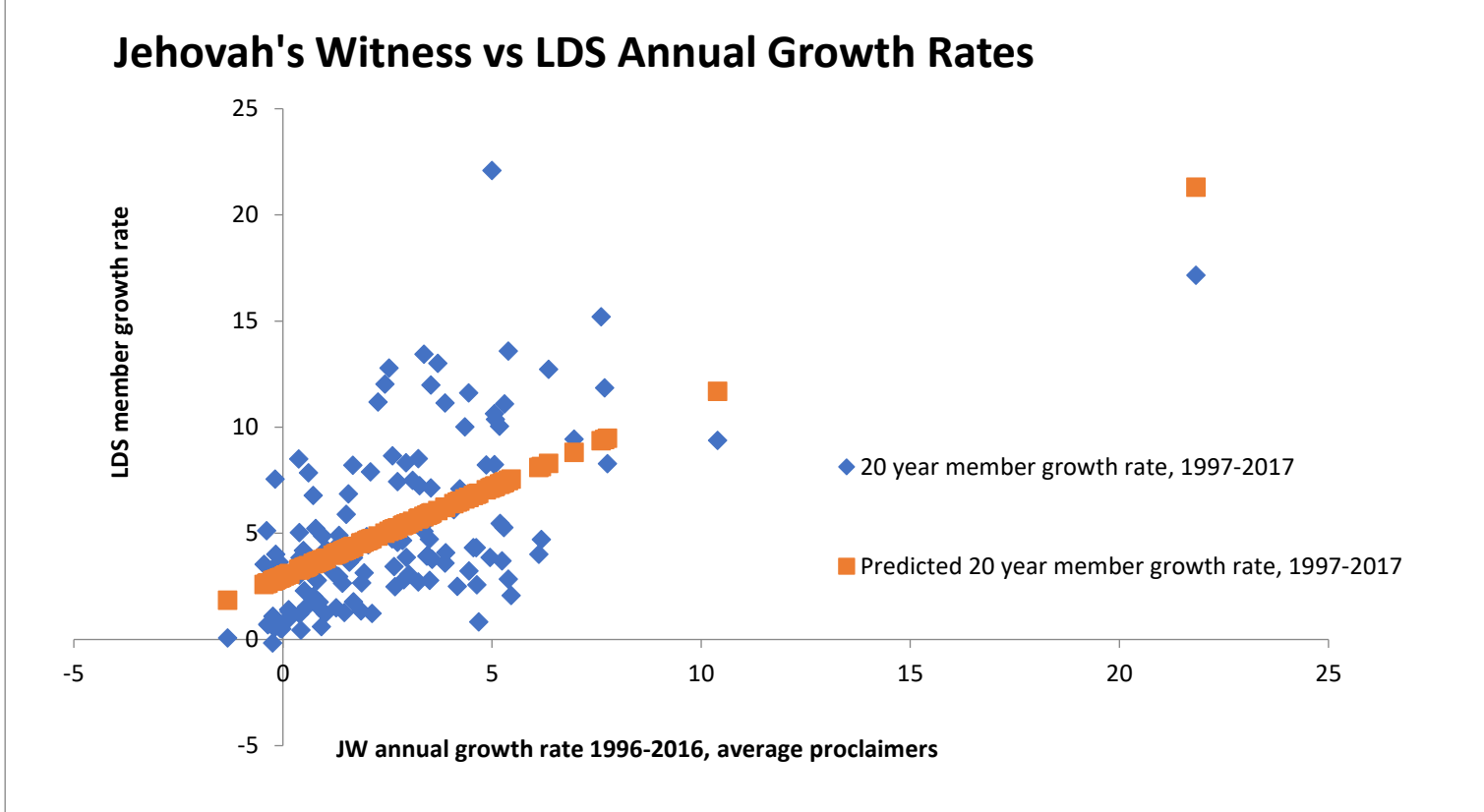
The number of active members per congregation shows no statistically significant relationship to annual church growth rates ($p=0.17$). Having more active members does not appear to make a congregation more likely to grow. The previously noted correlation appears to operate on activity rates rather than congregational size. There is no indication of any “critical mass” posited by the Centers of Strength theory resulting in global improvement in growth dynamics.

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Multiple regression of supply-side factors demonstrates that national outreach and members per congregation are independently and negatively correlated with membership growth rates. Member activity rates are independently positively correlated with growth, whereas the number of active members per congregation is not.

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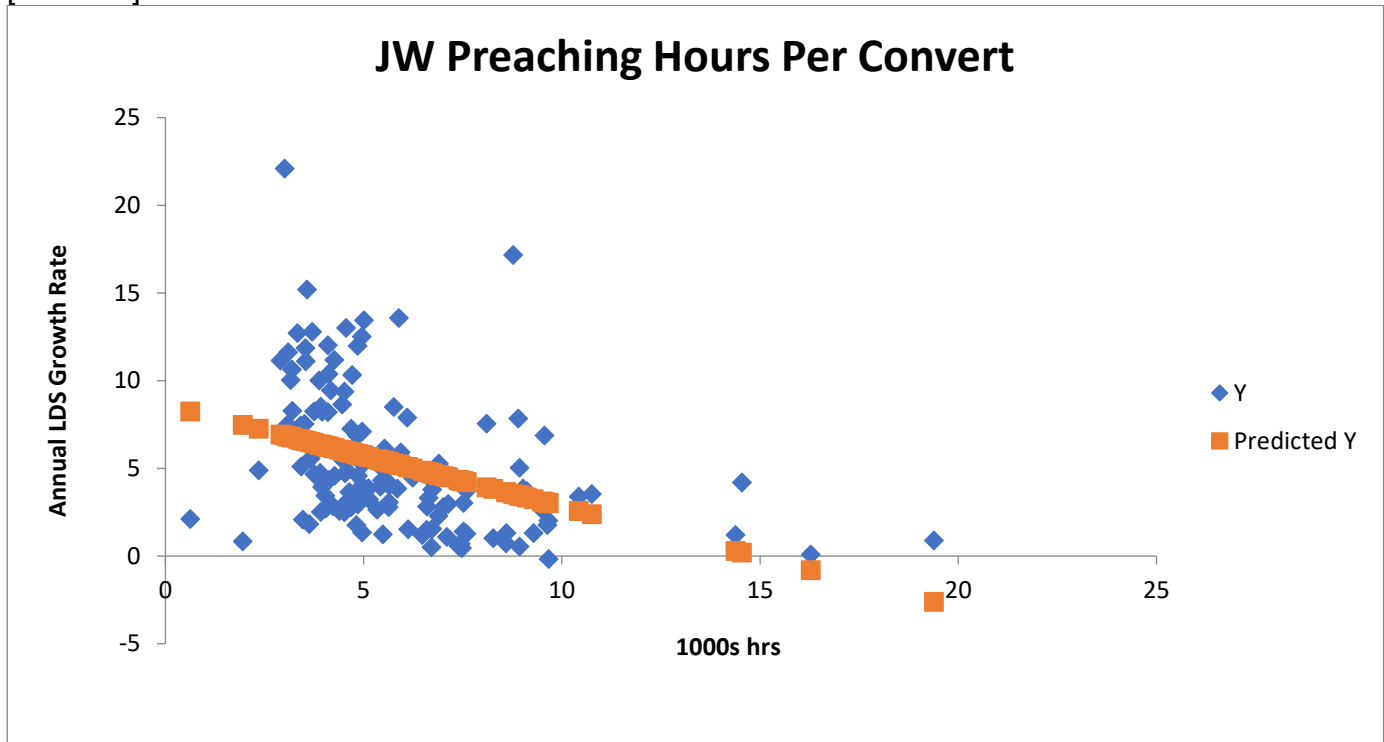
Small congregations with high activity rates and outreach to underserved and unreached areas are significantly associated with membership growth. Achieving and maintaining high convert retention and member activity and continuing to expand into under-reached areas may be considerably more important for long-term church growth than the factors posited by the “Centers of Strength” paradigm.



Indicator	Result	Explanation
Observations	134	Countries with data
Multiple R	0.584	Correlation coefficient (strength of relationship)
R Squared	0.341	34% of church growth variability explained
p-value	1.28×10^{-13}	Statistical significance, or chance correlation is random
X coefficient	0.84	A change in Jehovah's Witness growth rates of 1% is expected to correlate with a 0.84% increase in annual LDS growth rates.
Lower and upper 95% confidence interval	0.639-1.04	The true magnitude of correlation between JW and LDS growth rates is expected to fall in this range

High commitment outreach-oriented faiths, especially the Jehovah's Witnesses and Seventh-day Adventists, share much in common with the LDS Church. After HDI, average annual Jehovah's Witness growth rates demonstrate the strongest correlation to annual LDS growth rates of any factor evaluated. This may reflect elements of religious receptivity not represented in the Human Development Index.

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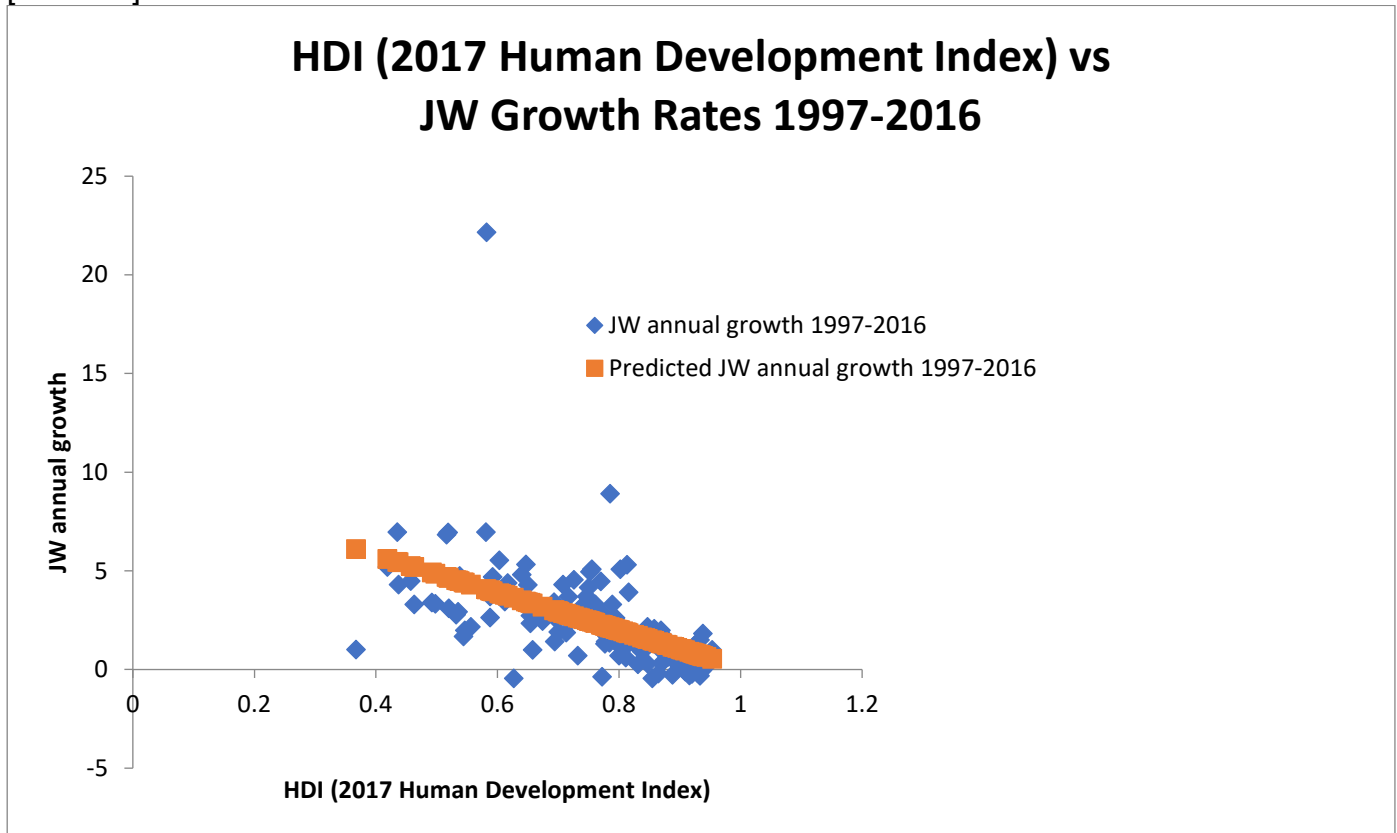


Indicator	Result	Explanation
Observations	136	Countries with data
Multiple R	0.388	Correlation coefficient (strength of relationship)
R Squared	0.150	Fraction of church growth variability explained
p-value	7×10^{-6}	Statistical significance, or chance correlation is random
X coefficient	-0.578	An increase of 1,000 JW proselytizing hours per baptism is expected to correlate with a 0.57% decline in annual LDS membership growth rates (+1,700 JW hours per convert ~ 1% decline in LDS growth)
Lower and upper 95% confidence interval	-0.344 - -0.813	The true magnitude of correlation between JW proselytizing hours per baptism and annual LDS church growth rate is expected to fall in this range

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Jehovah's Witness average preaching hours per convert are moderately inversely associated annual LDS growth rates, but had no independent predictive effect when controlling for HDI and JW growth rates.

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Indicator	Result	Explanation
Observations	111	Countries with data
Multiple R	0.511	Correlation coefficient (strength of relationship)
R Squared	0.261	Fraction of church growth variability explained
p-value	9.47×10^{-9}	Statistical significance, or chance correlation is random
X coefficient	9.47	A change in 0.1 in HDI is expected to correlate with a 0.94% decrease in annual JW growth rates
Lower and upper 95% confidence interval	-6.45 – -12.49	The true magnitude of correlation between HDI and annual JW growth rate is expected to fall in this range

One may wonder whether the growth rates of various faiths may differ in responsiveness to the Human Development Index. The Pew Research Center’s Religious Landscape Study found that US Jehovah’s Witnesses had the lowest rate of higher education of any major religious group,⁴ whereas Latter-day Saints along with Eastern Orthodox were the most educated Christians.⁵ I hypothesized that Jehovah’s Witness growth would still track with Human Development Index but would show a lower correlation than LDS growth.

⁴ Lipka, Michael. “A closer look at Jehovah’s Witnesses living in the U.S.” Pew Research Center, 26 April 2016.

<http://www.pewresearch.org/fact-tank/2016/04/26/a-closer-look-at-jehovahs-Witnesses-living-in-the-u-s/>

⁵ Pew Research Center, Religious Landscape Study, <http://www.pewforum.org/religious-landscape-study/religious-tradition/mormon/>

The Pew Research Center's 2014 Religious Landscape Study (published 2015) found that in the United States, the Jehovah's Witnesses have the lowest rate of higher education of any major religious group: 63% had a high school education or less, and only 9% completed an undergraduate college degree - less than one-third of the national average.⁶ Witnesses were also among the lowest earners of any faith.

The Watch Tower Society has encouraged a primary education, advised parents to send their children to school,⁷ and conducted literacy classes in areas of low literacy. In contrast, the Jehovah's Witness organization has historically not encouraged secular education beyond the high school level, teaching that higher education is spiritually dangerous.⁸ Some publications have suggested that scarce time is better spent preaching than on education and career in a world that is soon to be supplanted by an earthly paradise. Whereas both Adventists and Latter-day Saints (Mormons) have accredited universities where students people can gain a higher education in the context of religious fellowship with other young people of faith, the Witnesses provide theocratic schools for training of missionaries and pioneers but have no secularly accredited institutes of higher education.

The Human Development Index, or HDI is a composite of dimensional indexes for gross national income, education, and life expectancy. Jehovah's Witness growth appears to occur largely among those with lower income and education levels who are less participatory in the indicators that contribute to high HDI in developed nations. Jehovah's Witnesses in the United States also demonstrate strong demographic skew. 65% of Witnesses are women and 65% are converts, and seem to be an exception to the national trend for women to surpass men in educational attainment.⁹ From these data, one might suspect that the Jehovah's Witness growth rates might demonstrate a lower correlation than LDS growth rates with national HDI.

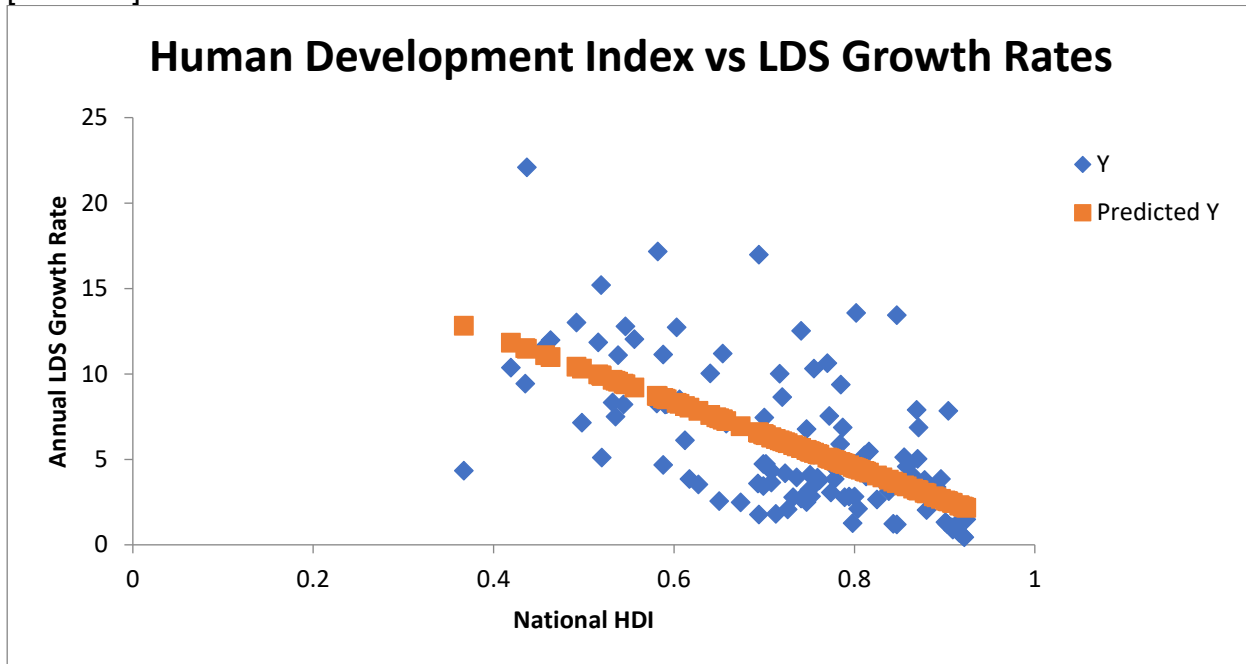
⁶ Lipka, Michael. "A closer look at Jehovah's Witnesses living in the U.S." Pew Research Center, 26 April 2016. <http://www.pewresearch.org/fact-tank/2016/04/26/a-closer-look-at-jehovahs-Witnesses-living-in-the-u-s/>

⁷ "Should My Child Go to School?" Watchtower, 15 March 2003, <https://wol.jw.org/en/wol/d/r1/lp-e/2003203> . Accessed 5 November 2017.

⁸ Vander Ploeg, Luke, "Lack Of Education Leads To Lost Dreams And Low Income For Many Jehovah's Witnesses," National Public Radio, 19 February 2017. <http://www.npr.org/2017/02/19/510585965/poor-education-leads-to-lost-dreams-and-low-income-for-many-jehovahs-Witnesses> . Accessed 5 November 2017.

⁹ Lipka, Michael. "A closer look at Jehovah's Witnesses living in the U.S." Pew Research Center, 26 April 2016. <http://www.pewresearch.org/fact-tank/2016/04/26/a-closer-look-at-jehovahs-Witnesses-living-in-the-u-s/>

[Slide 36]



Jehovah's Witness growth rates still demonstrate inverse correlation with national human development index (HDI), but the correlation was weaker. The 1997 HDI correlated with 49% of variability in subsequent twenty-year LDS membership growth rates, but only 32% of variability in JW growth rates in the same nations. The 2017 HDI correlated with 41% of the variability in LDS growth, but only 26% of JW growth.

While increasing human development index has generally been associated with decreasing religious growth rates, it appears that the magnitude and strength of correlation may vary among religious groups. This in turn may reflect a complex interplay of social factors, group dynamics, and theology, and warrants further investigation.

[Slide 37]

Independently Correlating Factors

In summary, independently correlating factors with LDS membership growth include the Human Development Index and annual Jehovah's Witness growth rates. Additional factors include the extent of national outreach, activity rates, and the number of members per congregation. Taken together, these five factors explain approximately 2/3 of LDS membership growth over the period studied.

[Slide 38]

These charts demonstrate the regression models with the contribution of each factor.

[Slide 39]

Congregational growth demonstrates similar trends to membership growth, with the same factors offering independent explanatory power.

[Slide 40]

Here they are in summary.

[Slide 41]

Approximately 1/3 of membership growth is unaccounted for by these correlates. Additional supply-side factors, including official programs and approaches, variability in members, missionaries, and leaders, and demand-side factors, including culture, language, history, religious plurality and fractionalization, government policy, political stability, religious freedom, international relations, and other factors, may be influential. Additional research is needed in these and other areas.

Whereas much of the extant research has focused on demand-side factors, supply-side factors require similar study. Demand-side factors including HDI are less predictive for faiths such as the Jehovah's Witnesses, and so viewing declining growth as inevitable may miss the considerable impact of a faith's own programs and policies. The Seventh-day Adventist Church experiences the same extrinsic challenges as the LDS Church, but achieved a record high in baptisms in 2017 while LDS convert baptisms hit a record low. Much of this discrepancy may arise from system and policy issues rather than solely from external circumstance.

[Slide 42]

Thanks to these and other authors who have performed salient research.

[Slide 43]

Thank you.

Appendix

Country	mbr growth	cong growth	HDI (2017)	HDI (1997) UN HDR	GDPP C (2017)	Pop Growth	National Outreach	Activity Est.	MB/C G (2017)	Active s/Con g	Fer tility	Urb an %	Mig/ 100 k	JW 1000 hrs/baptis m	JW grow th
Albania	9.38	3.94	0.785	0.641	4544.9	0.001	0.23	0.22	231.2	50.8	1.7	0.65	-637	4.52	10.39
American Samoa	1.55	1.06	-	-	22861	7E-04	0.95	0.4	389	155.6	N.A.	0.88	-	6.73	0.57
Angola	8.28	13.2	0.581	-	4465.7	0.033	0.2	0.5	204.8	102.4	6	0.36	56.7	3.2	7.76
Antigua and Barbuda	4.46	0	0.78	-	16702	0.01	0.32	0.5	237	118.5	2.1	0.21	10.7	6.24	2.04
Argentina	2.65	-0.3	0.825	0.746	14463	0.009	0.78	0.19	592.8	112.6	2.3	0.88	13.4	5.34	1.42
Armenia	10.3	5.18	0.755	0.623	3857.2	0.001	0.48	0.2	324.5	64.9	1.7	0.64	-208	4.71	-
Aruba	5.56	0	-	-	24371	0.004	0.5	0.32	295.5	94.5	1.8	0.41	238	3.66	3.44
Australia	2.29	0.45	0.939	0.889	55693	0.013	0.85	0.28	488.8	136.8	1.9	0.89	737	6.89	0.51
Austria	1.02	-1.5	0.908	0.824	47347	0.002	0.31	0.28	274.3	76.8	1.4	0.65	611	8.27	0.16
Bahamas	4.9	2.04	0.807	-	32661	0.01	0.77	0.2	347.3	69.4	1.8	0.83	484	6.9	1.34
Barbados	2.82	-1.4	0.8	0.74	17758	0.002	0.63	0.3	349	104.7	1.8	0.32	152	6.6	0.8
Belgium	0.7	-4.6	0.916	0.862	43488	0.006	0.51	0.25	596	149	1.8	0.96	450	7.45	0.36
Belize	4.33	-0.4	0.708	0.664	4806.5	0.021	0.5	0.23	447.8	103	2.6	0.42	397	5.46	4.55
Bermuda	3.03	0	-	-	99363	-0	0.15	0.4	182	72.8	N.A.	N.A.	-	7.52	0.39
Bolivia	3.6	0.32	0.693	0.58	3412.8	0.015	0.61	0.22	796.3	175.2	3	0.7	110	4.82	3.88
Botswana	10	8	0.717	0.57	7584.5	0.018	0.23	0.45	241.1	108.5	2.9	0.52	129	3.88	4.35
Brazil	3.93	0.95	0.759	0.664	9895.8	0.008	0.65	0.25	662.4	165.6	1.8	0.84	1.51	3.95	3.44
Bulgaria	4.01	-1.4	0.813	0.704	8077	-0.01	0.44	0.4	268.6	107.4	1.5	0.74	69.5	5.65	6.12
Cabo Verde	7.25	4.32	0.654	-	3301	0.013	0.76	0.25	338.2	84.5	2.5	0.62	399	4.69	3.27
Cambodia	17.2	10.4	0.582	0.397	1379.3	0.015	0.13	0.25	491.5	122.8	2.7	0.21	185	8.77	21.83
Cameroon	12	13.7	0.556	0.422	1441.4	0.026	0.24	0.5	149.4	74.7	5	0.55	29.2	4.1	2.44
Canada	1.32	0.66	0.926	0.862	45095	0.009	0.7	0.35	396.3	138.7	1.6	0.81	620	9.29	0.16
Cayman Islands	4.32	0	-	-	-	0.013	0.5	0.4	231	92.4	N.A.	0.98	-	5.57	4.62
Central African Republic	4.34	0	0.367	0.302	388.66	0.017	0.16	0.25	234	58.5	5.1	0.43	167.2	4.11	1.26
Chile	1.23	-2.3	0.843	0.741	15068	0.008	0.67	0.12	981.9	117.8	1.8	0.9	88.8	5.49	2.13
Colombia	2.51	-1.4	0.747	0.642	6379.6	0.008	0.61	0.2	802	160.4	1.9	0.79	58.6	3.92	4.17
Congo, Democratic Republic of	11.6	10.2	0.457	0.334	478.22	0.033	0.17	0.67	318.8	213.6	6.4	0.39	3.59	3.1	4.44
Congo, Republic of	8.52	6.35	0.606	0.505	2005.3	0.026	0.45	0.5	299.4	149.7	4.9	0.6	222	3.92	3.24
Cook Islands	3.64	-1.7	-	-	-	0.002	0.81	0.3	368.6	110.5	N.A.	0.91	-	4.64	1.59

Costa Rica	2.82	0.52	0.79 4	0.697	11729	0.01	0.46	0.19	610.5	115.9	1.9	0.8 1	79. 4	4.47	2.89
Cote d'Ivoire	13	14.5	0.49 2	0.391	1621.4	0.02 5	0.26	0.5	209	104.5	5.1	0.5	48. 2	4.56	3.7
Croatia	3.72	2.04	0.83 1	0.719	13271	-0.01	0.43	0.15	104	15.6	1.5	0.6	- 157	7.6	0.55
Cuba	4.57	5.64	0.77 7	0.669	7815	4E- 04	0.19	0.75	80.6	60.5	1.7	0.7 5	- 128	4.27	1.86
Curacao	2.96	-3.4	-	-	-	0.00 7	0.88	0.2	538	107.6	2.1	0.9 3	844	4.86	1.33
Cyprus	7.89	3.52	0.86 9	0.792	25380	0.00 8	0.44	0.33	114.2	37.7	1.4	0.6 7	379	6.1	2.09
Czech Republic	2.78	-2.5	0.88 8	0.774	20402	7E- 04	0.26	0.25	216.3	54	1.5	0.7 4	113	7.01	0.23
Denmark	-0.2	-0.4	0.92 9	0.843	56631	0.00 4	0.41	0.35	202.4	70.8	1.7	0.8 7	371	9.67	0.25
Dominican Republic	3.95	0.77	0.73 6	0.641	7477.6	0.01 1	0.55	0.2	690.9	138.1	2.5	0.8 1	- 281	5.42	3.46
Ecuador	2.84	-1.2	0.75 2	0.668	6216.6	0.01 4	0.65	0.2	804.3	160.8	2.6	0.6 4	45. 1	4.23	5.39
El Salvador	2.49	0.94	0.67 4	0.595	3894.7	0.00 5	0.51	0.22	767.9	168.9	2.2	0.6 9	- 750	4.52	2.68
Estonia	6.86	1.44	0.87 1	0.751	19735	-0	0.47	0.22	283.2	62.3	1.6	0.6 6	- 161	4.84	1.57
Ethiopia	12	7.17	0.46 3	-	872.84	0.02 5	0.04	0.4	480.7	192.3	4.6	0.2	11. 2	4.85	3.54
Fiji	2.71	1.51	0.74 1	0.675	5527.5	0.00 7	0.8	0.23	410.2	94.3	2.6	0.5 4	- 630	4.05	3.24
Finland	0.54	0	0.92 4	0.832	45927	0.00 4	0.5	0.37	163.3	60.4	1.8	0.8 4	294	8.93	-0.2
France	1.32	-0.7	0.90 1	0.834	39933	0.00 4	0.47	0.24	358	85.9	2	0.8	111	8.6	0.15
French Guiana	3.87	-3.4	-	-	-	0.02 5	0.49	0.35	428	149.8	3.5	0.8	414	5.12	2.95
French Polynesia	3.08	1.66	-	-	-	0.01	0.85	0.52	286.6	149	2.1	0.5 6	- 350	4.75	0.03
Germany	0.53	-0.7	0.93 6	0.844	44769	0.00 2	0.32	0.28	251.8	70.5	1.4	0.7 6	432	7.42	0.07
Ghana	8.24	8.71	0.59 2	0.476	1662.6	0.02 2	0.3	0.35	257.6	90.1	4.2	0.5 3	33. 9	3.75	5.06
Greece	5.03	-1.4	0.87 2	0.777	18637	-0	0.35	0.2	267.3	53.4	1.3	0.7 8	- 290	8.93	0.39
Grenada	7.55	0	0.77 2	-	10405	0.00 5	0.36	0.4	425	170	2.2	0.3 5	- 789	8.1	0.19
Guadeloupe	8.5	5.64	-	-	-	-0	0.56	0.45	170.6	76.8	2	N.A	- 445	5.76	0.38
Guam	2.97	1.44	-	-	-	0.00 9	0.5	0.2	629	125.8	2.4	N.A	- 917	7.13	1.3
Guatemala	2.57	0.36	0.65 2	0.523	4469.5	0.02 2	0.6	0.2	619.2	123.8	3.2	0.5 2	58. 1	4.39	4.64
Guyana	11.2	6.71	0.65 4	0.584	4578.2	0.00 6	0.63	0.2	530.9	106.1	2.6	0.3	697	4.26	2.27
Haiti	7.14	5.42	0.49 8	0.431	783.79	0.01 2	0.33	0.3	501	150.3	3.1	0.6	- 270	3.39	3.54
Honduras	3.86	1.5	0.61 7	0.541	2766.3	0.01 6	0.5	0.18	742	133.5	2.7	0.5 2	31. 9	4.94	4.95
Hong Kong	1.35	0.91	0.93 3	0.816	46080	0.00 9	0.94	0.14	591.8	82.8	1.2	N.A	- 202	4.96	1.87
Hungary	3.15	0.73	0.83 8	0.747	14209	-0	0.4	0.22	237	52.1	1.3	0.7 3	61. 9	4.61	1.2
Iceland	1.76	0	0.93 5	0.84	70248	0.00 8	0.67	0.4	142	56.8	2	0.9 6	- 128	9.64	0.87
India	10	4.45	0.64	0.473	1976.1	0.01 1	0.05	0.4	315.5	126.2	2.4	0.3 2	- 38.	3.16	5.18

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													-		
Indonesia	1.77	0.66	0.69 4	0.59	3875.8	0.01 1	0.11	0.4	308.2	123.3	2.5	0.5 4	62. 6	4.82	1.69
Ireland	2.67	0.4	0.93 8	0.809	68711	0.00 9	0.37	0.35	300.2	105	2	0.6 4	- 583	9.5	1.88
Italy	2.03	-1.1	0.88	0.814	31997	-0	0.25	0.25	266.5	66.6	1.4	0.7 2	89. 1	9.66	0.73
Jamaica	2.79	1.64	0.73 2	0.661	5193.4	0.00 3	0.4	0.25	356.9	89.2	2.1	0.5 4	- 642	4.69	0.82
Japan	0.9	-0.6	0.90 9	0.848	38449	-0	0.6	0.18	495.5	89.1	1.4	0.9 4	56. 3	19.4	0.08
Kenya	8.22	6.63	0.59	0.453	1695.4	0.02 5	0.14	0.5	289.4	144.7	4.1	0.2 6	19. 6	3.95	4.86
Kiribati	6.12	2.58	0.61 2	-	1721.9	0.01 7	0.8	0.25	656.3	164	3.8	0.4 1	- 360	5.53	4.09
Latvia	13.4	1.12	0.84 7	0.692	15550	-0.01	0.42	0.29	246.8	71.5	1.5	0.7	863	5.01	3.37
Lesotho	5.1	8.37	0.52	0.48	1360.6	0.01 3	0.1	0.28	216.6	60.6	3.3	0.2 7	- 221	3.43	3.37
Liberia	9.44	7.02	0.43 5	-	694.17	0.02 6	0.29	0.33	347.3	114.6	4.8	0.4 9	82. 4	4.17	6.96
Lithuania	4.58	2.58	0.85 8	0.724	16731	-0	0.35	0.38	196	74.4	1.6	0.6 9	101 7	4.86	2.74
Luxembourg	7.85	0	0.90 4	0.826	10586 3	0.01 2	0.26	0.35	454	158.9	1.5	0.8 6	165 0	8.9	0.61
Macau	3.7	5.64	-	-	77111	0.01 6	1	0.3	483	144.9	1.2	0.9 5	133 9	9.12	5.24
Madagascar	15.2	12.2	0.51 9	-	448.98	0.02 7	0.13	0.62	297	184.1	4.4	0.3 5	5.7 1	3.57	7.61
Malaysia	13.6	6.54	0.80 2	0.706	9755.2	0.01 3	0.26	0.3	319.5	95.8	2.1	0.7 5	488	5.89	5.39
Malta	3.8	0	0.87 8	0.768	27327	0.00 3	0.48	0.2	209	41.8	1.4	0.9 6	437	6.73	1.63
Marshall Islands	3.65	1.44	0.70 8	-	4040.3	8E- 04	0.66	0.3	580.8	174.2	N. A.	0.7 4	-	-	0.09
Martinique	4.25	0	-	-	-	4E- 04	0.37	0.42	230	96.6	2	0.9 4	- 871	6.75	1.03
Mauritius	4.85	5.64	0.79	0.656	10504	0.00 3	0.17	0.4	172	68.8	1.5	0.3 9	- 190	4.59	2
Mexico	3.07	1.25	0.77 4	0.683	9318.8	0.01 2	0.6	0.23	722.3	166.1	2.3	0.7 8	45. 9	5.64	3.01
Micronesia	3.54	1	0.62 7	-	3202.8	0.00 7	0.7	0.4	282.5	113	3.3	0.2 3	154 2	10.8	0.45
Moldova	7.44	7.17	0.7	0.593	2694.5	-0	0.21	0.35	104	36.4	1.3	0.3 8	47. 2	3.41	2.74
Mongolia	12.5	9.59	0.74 1	0.568	3639.9	0.01 5	0.43	0.35	465.6	162.9	2.8	0.7 1	96. 1	4.95	-
Mozambique	22.1	18.3	0.43 7	0.266	426.09	0.02 9	0.17	0.38	373.6	141.9	5.5	0.3 1	16. 4	3.01	5
Namibia	7.53	7.17	0.64 7	0.575	5589.5	0.02 1	0.14	0.45	213.7	96.1	3.6	0.4 7	10. 6	3.51	5.29
Nauru	0.83	0	-	-	8574.7	-0	1	0.3	117	35.1	N. A.	0.9	-	1.95	4.68
Netherlands	1.1	-2	0.93 1	0.865	48555	0.00 3	0.32	0.3	359.1	107.7	1.7	0.9 1	73. 4	7.1	0.24
New Caledonia	3.14	0.59	-	-	-	0.01 3	0.48	0.53	268.3	142.2	2.2	0.6 9	405	4.7	1.94
New Zealand	1.39	0.18	0.91	0.86	41572	0.00	0.9	0.42	506.4	212.6	2	0.8	383	-	-

			7			9						5				
Nicaragua	7.09	1.97	0.658	0.543	2220.7	0.011	0.45	0.16	887.6	142	2.3	0.61	-	430	4.96	4.23
Nigeria	8.33	7.25	0.532	-	1994.6	0.026	0.23	0.5	272.4	136.2	5.7	0.49	30.6	-	3.96	2.94
Niue	0.08	-3.4	-	-	-	0.004	1	0.54	152.5	82.3	N.A.	0.33	-	-	16.3	1.32
Northern Mariana Islands	1.54	0	-	-	-	9E-04	0.9	0.27	816	220.3	N.A.	0.9	-	-	-	-
Norway	0.6	-0.4	0.953	0.894	75389	0.009	0.48	0.35	210.1	73.5	1.8	0.79	829	-	7.39	0.92
Palau	1.27	0	0.798	-	15980	0.011	0.95	0.15	515	77.2	N.A.	0.87	-	-	7.59	1.47
Panama	2.78	0	0.789	0.7	2401.6	0.016	0.48	0.13	759.6	98.7	2.6	0.66	135	-	5.63	3.51
Papua New Guinea	8.21	7.74	0.544	0.435	5600.1	0.02	0.1	0.35	339.5	118.8	3.8	0.12	2.38	-	4.1	1.67
Paraguay	4.73	0.46	0.702	0.618	6731.9	0.013	0.5	0.18	691.9	124.5	2.6	0.63	251	-	4.53	3.5
Peru	3.23	-1.3	0.75	0.654	2988.9	0.012	0.56	0.2	789.9	157.9	2.5	0.78	147	-	5.14	4.45
Philippines	3.44	0.98	0.699	0.611	13821	0.015	0.5	0.2	628.4	125.6	3.1	0.44	122	-	4.03	2.66
Poland	4.02	2.04	0.865	0.759	21159	-0	0.18	0.2	165.2	33	1.3	0.61	38.8	-	4.96	0.17
Portugal	1.2	-2.2	0.847	0.773	31581	-0	0.46	0.12	654.5	78.5	1.3	0.67	272	-	6.48	0.4
Puerto Rico	0.5	-1.3	-	-	-	-0	0.85	0.19	566.6	107.6	1.5	0.94	566	-	6.71	0.03
Reunion	1.53	0	-	-	-	0.008	0.36	0.25	237.2	59.3	2.4	0.99	320	-	6.12	0.86
Romania	5.23	-0.3	0.811	0.696	10786	-0.01	0.23	0.3	203.4	61	1.5	0.6	306	-	4.98	0.78
Russia	5.47	0.3	0.816	0.704	10956	-0	0.33	0.2	227.9	45.5	1.7	0.73	141	-	4.48	5.19
Samoa	1.82	1.1	0.713	0.63	4258.3	0.006	0.9	0.38	512.3	194.6	4.2	0.19	128.4	-	3.63	-
Serbia	6.87	0	0.787	0.705	5901.2	-0	0.2	0.17	126	21.4	1.6	0.59	228	-	9.56	-
Sierra Leone	10.4	8.14	0.419	0.268	487.61	0.022	0.23	0.38	290.1	110.2	4.8	0.35	54.4	-	4.11	5.08
Singapore	2.63	2.28	0.932	0.793	57713	0.015	1	0.35	306	107.1	1.2	N.A.	116.7	-	-	-
Slovakia	5.13	1.44	0.855	0.757	17655	4E-04	0.16	0.42	68	28.5	1.4	0.54	41.6	-	5.41	0.39
Slovenia	3.85	2.58	0.896	0.796	23654	6E-04	0.21	0.32	85.2	27.2	1.6	0.5	159	-	9.02	0.41
Solomon Islands	12.8	8.37	0.546	-	2114.7	0.02	0.09	0.5	219.8	109.9	4.1	0.23	381	-	3.7	2.54
South Africa	4.74	3.38	0.699	0.644	6179.9	0.012	0.39	0.33	359.3	118.5	2.6	0.62	281	-	3.9	2.61
South Korea	1.21	-2.3	0.903	0.8	29938	0.004	0.7	0.12	813.5	97.6	1.2	0.81	66.3	-	14.4	1.01
Spain	3.39	-0.1	0.891	0.81	28359	9E-04	0.52	0.24	406.4	97.5	1.3	0.82	246	-	10.4	0.53
Sri Lanka	10.6	7.17	0.77	0.662	4073.3	0.004	0.05	0.3	377.7	113.3	2.1	0.19	463	-	3.19	5.06
St. Kitts and Nevis	3.85	0	0.778	-	17397	0.009	0.25	0.5	211	105.5	N.A.	0.33	-	-	5.85	1.69
St. Lucia	6.78	0	0.747	-	9606.9	0.005	0.49	0.7	184	128.8	1.5	0.19	4.45	-	-	0.72
St. Maarten	4.7	0	-	-	-	0.01	0.1	0.5	251	125.5	N.A.	N.A.	-	-	-	2.04

(Netherlands)						1					A.	.			
St. Vincent	4.19	0	0.72 3	-	7124.4	0.00 3	0.45	0.4	227.6	91	2	0.5 1	- 907	14.5	0.49
Suriname	8.65	8.37	0.72	-	5869.5	0.00 9	0.6	0.33	315.6	104.1	2.5	0.6 5	- 176	4.46	2.62
Swaziland (Eswatini)	4.67	3.52	0.58 8	0.504	3850.5	0.01 8	0.16	0.45	332.3	149.5	3.3	0.2	- 86. 2	3.76	2.86
Sweden	0.72	-1.3	0.93 3	0.874	52925	0.00 7	0.76	0.3	242.5	72.7	1.9	0.8 5	509	8.59	0.36
Switzerland	1.41	-0.5	0.94 4	0.864	80637	0.00 8	0.61	0.4	250	100	1.5	0.7 3	930	7.52	0.14
Taiwan	4.71	3.22	-	-	24292	0.00 3	0.6	0.2	515.4	103	1.1	0.7 7	143	6.54	6.18
Tanzania	11.1	9.37	0.53 8	0.375	1034.2	0.03 1	0.08	0.5	273.6	136.8	5.2	0.3 1	67. 7	3.54	5.3
Thailand	5.27	2.11	0.75 5	0.625	6590.6	0.00 2	0.14	0.19	539	102.4	1.5	0.5 2	48. 4	6.9	5.28
Tonga	2.07	0.77	0.72 6	0.671	4520.9	0.00 9	0.95	0.33	385.8	127.3	3.8	0.2 4	148 2	3.47	5.46
Trinidad and Tobago	5.9	2.98	0.78 4	0.697	16638	0.00 3	0.4	0.4	384.8	153.9	1.8	0.0 8	72. 9	5.94	1.51
Tuvalu	4.88	0	-	-	3688.7	0.00 9	0.47	0.5	257	128.5	N. A.	0.5 4	-	2.35	0.95
Uganda	11.9	7.36	0.51 6	0.353	706.5	0.03 3	0.08	0.23	551	126.7	5.9	0.1 6	67. 8	3.53	7.69
Ukraine	4.09	-0.4	0.75 1	0.663	2656	-0	0.34	0.33	232.6	76.7	1.5	0.7	90. 9	4.01	3.89
United Kingdom	0.45	-0.7	0.92 2	0.849	39800	0.00 6	0.5	0.18	571.4	102.8	1.9	0.8 1	297	7.48	0.43
United States	1.5	1.38	0.92 4	0.881	59792	0.00 7	0.75	0.4	466.9	186.7	1.9	0.8 3	275	6.59	1.27
Uruguay	2.12	-1	0.80 4	0.727	16942	0.00 4	0.76	0.18	755.3	135.9	2	0.9 5	- 173	0.63	-
Vanuatu	12.7	9.72	0.60 3	-	3094	0.02 1	0.75	0.82	274.5	225.1	3.4	0.2 6	42. 9	3.33	6.35
Venezuela	3.78	0.77	0.76 1	0.664	6890.1	0.01 3	0.67	0.17	683.4	116.1	2.4	0.8 8	42. 7	4.96	3.57
Vietnam	17	8.37	0.69 4	0.539	2353.4	0.01	0.06	0.23	230.6	53	2	0.3 4	41. 5	-	-
Virgin Islands, U.S.	3.31	0	-	-	-	1E- 04	0.96	0.25	288	72	2.3	0.9 7	- 858	6.64	0.14
Zambia	11.1	9.81	0.58 8	0.419	1491.2	0.03	0.2	0.3	318.4	95.5	5.2	0.3 9	39. 2	2.9	3.88
Zimbabwe	7.5	6.36	0.53 5	0.459	1185.3	0.02 3	0.28	0.35	398.2	139.4	4	0.3	- 296	3.08	3.1