LINKS BETWEEN ECONOMIC DEVELOPMENT AND NEW MEASURES OF LGBT INCLUSION

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EXECUTIVE SUMMARY

This study provides new evidence that inclusion of lesbian, gay, bisexual, and transgender (LGBT) people is linked to economic performance. A large and growing body of research documents the violence, discrimination, and social stigma experienced by LGBT people in every country that has been studied. These experiences at the individual level limit LGBT people's access to jobs, to schooling, to health care services, to political participation, and to participation in their families, for example. All of those effects create barriers to full participation in the economy for LGBT people, which could also reduce economic output more generally.

We test the link between LGBT inclusion and Gross Domestic Product (GDP) per capita at the macroeconomic level. We predict that countries with more inclusion will have higher GDP per capita. To assess this prediction, we study more than 120 countries between 1990 and 2014.

To measure inclusion, we draw on three new measures: (1) a Legal Count Index (LCI) that counts the number of LGBT-supportive laws, (2) a Legal Environment Index (LEI) that measures patterns of adoption of laws in countries, and (3) a Global Acceptance Index (GAI) that is estimated from public opinion data. We combine these measures with economic data from the Penn World Tables and run regressions that control for country-level fixed effects and year effects.

KEY FINDINGS

- As in prior research, we find a positive correlation between LGBT inclusion and GDP per capita with the three different measures of inclusion. While this kind of analysis does not prove causality, it does indicate a strong statistical association between LGBT inclusion and higher GDP per capita.

- Variations in the Legal Count Index and the Legal Environment Index appear to be more important for explaining variation in GDP per capita than is the Global Acceptance Index. This finding could reflect the greater importance of legal rights in symbolizing and enacting inclusion of LGBT people, but it could also reflect a Global Acceptance Index that is constructed from insufficient data on public opinion for some countries.

- Some evidence emerges that the number of legal rights and the degree of public acceptance reinforce each other. With the Legal Count Index—but not the Legal Environment Index—an interaction measure combining the effect of acceptance and legal rights appears to explain variation in GDP per capita.

INTRODUCTION

Organizations and leaders working on economic development have expressed increased interest in how the treatment of LGBT people might affect the economy. The evidence on the ground of ongoing stigma, violence, and discrimination against LGBT people documents treatment that reduces the ability of LGBT people to contribute to the economy and that holds back LGBT people from fully participating.[1] Also, recent research has found a correlation between rights related to homosexuality in a country and that country's level of economic development—more rights are associated with higher GDP per capita.[2] Putting both sources of evidence together suggests that stigma and discrimination against LGBT people undermine LGBT inclusion and reduce economic development.

Our study provides a new lens on the macroeconomic impact of LGBT inclusion. One of the challenges in empirical macroeconomic research on LGBT rights and inclusion is to find a good measure of LGBT inclusion that can be compared across countries and over time. Here we use three new measures of inclusion: (1) a Legal Count Index that counts the number of LGBT-supportive laws, (2) a Legal Environment Index that measures patterns of adoption of laws in countries, and (3) a Global Acceptance Index that is estimated from public opinion data. The latter two measures are conceptually new ones that we are testing in cross-national economic research for the first time. We have two goals: (1) to assess the relationship between these three measures of inclusion and with GDP per capita across 120 countries, and (2) to compare how these measures are related to GDP per capita.

We find that all three measures are positively correlated with GDP per capita after controlling for other determinants of GDP. In addition, the legal measures appear to be stronger predictors than public acceptance. We also find some evidence that legal rights and public acceptance are stronger predictors of GDP per capita when combined than when they are alone.

The next section outlines the argument that LGBT inclusion will have an impact on the economy, including a brief description of past research findings. In section 3 we present our main measures of LGBT inclusion and the economy. The fourth section describes the results, and we present conclusions in the final section.

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[1] See review in Badgett and Crehan, 2017.
[2] See Badgett, Waaldijk, Rodgers, and Nezhad, 2014; Badgett, Waaldijk, and Rodgers, 2017.

DISCUSSION

A. HOW LGBT INCLUSION CAN AFFECT THE ECONOMY

To show the potential links between inclusion and the economy, we start with an understanding of LGBT "inclusion" and "exclusion." A large and growing body of research documents the violence, discrimination, and social stigma experienced by LGBT people in every country that has been studied.[3] These experiences limit LGBT people's access to jobs, to schooling, to health care services, to political participation, and to participation in their families. We group those experiences under the umbrella term "exclusion" because access is blocked off to LGBT people. Thus, social exclusion is defined as a multi-dimensional dynamic by which LGBT people are denied resources, rights, and opportunities to participate in the typical relationships that are available to most people within the economic, political, social and cultural spheres. "Inclusion" switches the focus to situations in which LGBT people have full access to the social, political, economic, and cultural opportunities and experiences that non-LGBT people have.

Inclusion is reflected in opportunities that might be embedded in the law, such as employment nondiscrimination. Inclusion could also be measured by whether LGBT people achieve equal outcomes to non-LGBT people, such as receiving the same earnings or social security payments that others do who have the same job qualifications or who meet the same eligibility standards. Those equal achievements would also be evidence of full inclusion. In addition, the degree of inclusion in a country would be related to the degree of social acceptance of LGBT people. Social acceptance—positive opinions about and attitudes toward LGBT people—will affect the treatment of LGBT people in many different life contexts. (In the next section, we turn the legal rights and measures of positive public opinion into explicit measures of inclusion.)

The links between inclusion and the economy can work in both directions. In other words, inclusion can help improve the economy, and an improving economy can generate greater inclusion. First, inclusion can enhance the economy, primarily by promoting an increase in the human capital available to the economy and by using existing human capital more efficiently. Second, an improving economy can enhance inclusion of LGBT people by making society more open to individual rights.[4]

The first link is that inclusion of LGBT people can improve the functioning of the economy by better developing and using the skills and abilities of LGBT people. We call this the "human capital approach." This argument is commonly made for inclusion of women and people in ethnic minority groups (Berik, Rodgers, & Seguino, 2009). We see this effect most clearly for LGBT people by looking at the impacts of three examples of *exclusion* in the economy.

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[3] See, for example, Badgett, Waaldijk, Nezhad, and Rodgers, 2014, or Badgett & Crehan, 2017.
[4] These links are discussed in more detail in Badgett, et al., 2014.

The first example is that employment discrimination against LGBT people means that they are not being used to their full capacity in the economy, as when they are unemployed or are only hired for jobs that do not fully use their skills (Becker, 1971; Bergmann, 1971). Harassment in the workplace or marketplace also hinders the efficiency of LGBT workers, stopping them from making the economic contributions they are capable of. Businesses lose out on the full contributions of LGBT workers because of these socially embedded biases.

A second example is when barriers to education for LGBT people reduce the amount of skills, abilities, and knowledge in the economy—what economists call "human capital." LGBT students struggle to stay in school and to learn when they experience harassment or outright discrimination against them because of their sexual orientation or gender identity. As a result, LGBT people might get less knowledge and fewer years of education, which reduces the amount of human capital in an economy.

Lastly, another form of human capital is health, which affects the ability of individuals to work in the marketplace, in the home, or to care for family members. LGBT people face several challenges that reduce their health and ability to make economic contributions. LGBT people face barriers to getting health care because of discrimination by providers (i.e., providers denying services or treatment) and because of the lack of availability of culturally competent care. Furthermore, LGBT individuals face added health challenges compared with non-LGBT people. Experiences of violence, stigma, and discrimination are physically and emotionally stressful and can have effects on both the physical and mental health of LGBT people. This "minority stress" generates health disparities for LGBT people that are rooted in their social and legal disadvantage. Poorer health and less access to appropriate health care add up to an impaired ability to contribute to the economy.

Two empirical studies provide examples of this first link, looking at particular types of exclusion and building a model of the economic effect of LGBT exclusion at the national level. These models use discrimination and health disparities in a particular country and then estimate how many people are less healthy and productive because of exclusion. Next, they calculate how much that exclusion would cost the economy. A study of health disparities for LGB people (not including transgender people) in Canada calculated an annual loss of $500 million to $2.3 billion in Canadian dollars, or US$317 million to US$1.5 billion (Banks, 2003). Another study of the impact of LGBT exclusion in India measured the effect of employment discrimination and health disparities to generate an annual loss of $1.2 billion to $27 billion (Badgett, 2014).

A related but less direct link that is backed by evidence comes from urban planner Richard Florida. Florida argues that the inclusion of LGBT people—measured as legal rights or positive public opinion—sends a signal of acceptance of diversity and of a climate that supports creative people. Places that seem welcoming to LGBT people will also attract non-LGBT immigrants and skilled workers looking for tolerance of diversity (Florida, 2014; Florida and Gates, 2001). A recent study of the United States found that states that passed laws against employment discrimination based on sexual orientation attracted the most productive inventors, potentially giving their employers and state economy a boost (Gao and Zhang, 2016).

The second main connection between inclusion and economic development goes in the other direction, where improvements in the economy lead to greater inclusion of LGBT people. Political scientists call this connection the development of "post-materialist values." As a country becomes richer, individuals are less worried about economic subsistence, which provides social and political space to increase support

of values of self-expression and respect for minority rights. These studies compare measures of attitudes toward homosexuality across countries to see whether those attitudes are associated with economic development after holding constant other variables, such as religiosity or education level. Many studies have shown that public acceptance of LGBT people is correlated with a country's level of economic development (e.g. Inglehart, 1981; 2008; Stulhofer & Rimac, 2009; Reynolds, 2013).

Distinguishing between the post-materialist values connection and inclusion-improves-the-economy connection is difficult, since both predict that more inclusion (or better attitudes) is associated with greater economic output. The main difference in empirical approaches is in what is known as the "dependent variable" in statistics. The post-materialist values studies are explaining variations in attitudes across countries, looking to see if countries are more inclusive where economic development is greater (Inglehart, 1981; 2008; Stulhofer & Rimac, 2009; Reynolds, 2013). The economic value of inclusion studies are explaining differences in economic development, analyzing whether economic development is greater in countries where LGBT people are more included.

Three previous studies have compared LGBT inclusion and economic development measures across countries, and each finds a positive correlation. One study focused on the determinants of foreign direct investment (FDI), or the value of investments made by companies from outside the country in question, across a sample of low-, middle-, and high-income countries between 1997 and 2002. After taking into account other factors that predict FDI, the countries with public opinion data showing more acceptance of homosexuality had higher levels of FDI (Noland, 2005).

Two other studies have found that countries with more inclusion, measured as an index of inclusive laws related to homosexuality, had higher levels of GDP per capita after controlling for other economic variables that predict GDP. In the first study of 39 emerging economies from 1990-2011, an additional right was associated with an increase of $320 in GDP per capita, or about 3% of average GDP per capita in that sample (Badgett, et al., 2014). The second study used the same index for a larger sample—132 countries—over a longer time period, 1966-2011 (Badgett, Waaldijk, and Rodgers, 2017). An additional right was associated with an increase in GDP per capita of $2065, with the larger effect reflecting the presence of high-income countries in that study.

Those findings in the economic studies show a clear correlation between inclusion and economic outcomes. However, this kind of analysis does not allow us to conclude that the effect is causal; adding one LGBT-positive law will not necessarily result in a $2065 increase in GDP per capita. Similarly, the research on the post-materialist values approach does not necessarily imply that an improvement in the economy will directly cause an improvement in attitudes or other measures of inclusion. Because the correlation that the two theoretical approaches are explaining is the same, it is hard to distinguish the two dynamics. Most likely, both forces are at work and reinforce each other. We argue that the country-level studies of the exclusion of LGBT people and the studies that cost out the value of that exclusion strongly support the idea that at least some of the correlation between inclusion and GDP per capita is causal.

METHODOLOGY

A. MEASURES OF LGBT INCLUSION AND ECONOMIC VARIABLES

As noted, our approach to understanding the relationship between LGBT inclusion and economic output focuses on whether countries with higher levels of inclusion also have greater economic output per person.[5] As a measure of economic output, we use the average GDP per person, or GDP per capita.

The innovation of this paper is to propose new measures of LGBT inclusion and to test for possible variations in the relationships of inclusion to GDP. We use three different measures of LGBT inclusion—although transgender rights are not included in the legal measures due to lack of data—described below. In addition, we control for other economic measures that are known to influence GDP per capita. The time period for which these variables are all available is 1990-2014.

Legal Count Index (LCI): This index is similar to the index used in Badgett, et al., (2014), although it was calculated from different sources and uses a different set of seven policies related to homosexuality: (1) same-sex sexual activity is decriminalized, (2) gay people can serve in the military, (3) sexual orientation discrimination in employment is banned, (4) sexual orientation discrimination in public accommodations is forbidden, (5) joint and/or second parent adoption by same-sex partners is legally possible, (6) same-sex couples can legally marry, and (7) a constitutional provision prohibits discrimination based on sexual orientation. We add up the number of such laws, so the **Legal Count Index** ranges from zero to seven.

We relied on secondary data about legal norms, established either legislatively, judicially, or by executive action, in each country. Each of the seven policies was chosen because they correspond to contested legal norms for LGB people, each were related to development outcomes, and data about them were available. The sources included global compilations of laws as well as 149 internet-based resources on specific laws in specific countries.[6]

Laws that open opportunities for LGBT people are likely to improve the degree of inclusion in a country, so it is also a sensible measure. Another advantage of using a legal index to measure inclusion is that it is available for many years. However, laws are not always enforced, and different laws could have a different impact on the economy.

Legal Environment Index (LEI): A second way to combine the information from legal rights into a measure of inclusion is derived from the fact that laws are often adopted in a certain order and appear in clusters. The **Legal Environment Index** is derived from the same data on laws used in the Legal Count Index. In theory, there can be 3,432 different combinations of policies that are in place. In reality, we observe that laws are commonly adopted in a sequence, such that the adoption of some of these legal norms appear to be tied to the adoption of others, thereby producing a limited number of patterns of policies in a given year (Sanders, 1996; Wintemute, 2005). If there are fairly regular patterns, then knowing where a country

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[5] In essence, we are following the methods used in the report by Badgett, et al., in 2014.
[6] See Flores and Park, 2018a, for more details on sources used to code the laws.

is on that path might provide more information about a country's level of inclusion than a simple count of laws.

Flores and Park (2018a) used a statistical approach to identify clusters of laws and paths of change in adoption of the seven legal rights.[7] Most commonly, the initial legal environment was that of no inclusion: same-sex sexual behavior was criminalized and no protections existed. The first transition for most countries was to decriminalize same-sex sexual activity. The data showed that after decriminalization, countries followed one of two trajectories on the path to fullest inclusion, which usually meant having five or more rights. One trajectory led from decriminalization to the adoption of employment non-discrimination laws (including military service), followed by adoption of laws relating to family recognition. A second trajectory led from decriminalization to the adoption of family recognition laws, then employment laws. Ultimately, both of these two different pathways merged to the highest level of inclusion found in the statistical model for at least some countries.

The resulting Legal Environment Index estimates five different stages that measure a country's progress toward legal inclusion in a given year:

1. No inclusion: These countries have none of the seven laws.
2. Decriminalization only: These countries have only the decriminalization law.
3. Some inclusion: These countries are on a path from decriminalization to further recognition through allowing military service or adoption rights.
4. Greater inclusion: These countries expand inclusion from stage 3 into the presence of nondiscrimination laws or the right to marry.
5. Most inclusion: These countries have almost all of the rights (5-7 of them), with the law most commonly missing being a constitutional provision prohibiting discrimination.

On one hand, the Legal Environment Index might better capture the degree of inclusion in each country than the Legal Count Index, especially if having certain sets or being on a particular path to inclusion matters more than the count of individual laws. On the other hand, the Legal Environment Index is much less sensitive to the adoption of a single law than the Legal Count Index, even if that adoption of an additional law is seen as having important symbolic and practical value. Also, the same potential disadvantage of using laws to measure inclusion—they may not be enforced—is still present for this measure.

For the analysis using the Legal Environment Index, we have a measure for each country's predicted stage. Each stage is captured by one of five dummy variables that is either one (at that stage) or zero (not at that stage) for that country in a given year.

Global Acceptance Index (GAI): The third measure of inclusion is an index based on public opinion survey data (similar to the measure used in political science studies of the relationships between acceptance and GDP). Public opinion may reflect the level of inclusion or opportunities in a different way from laws, since views of individuals can matter in a wide range of social and economic situations such as families, neighbors, government agencies, employers, and coworkers.

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[7] They used a Hidden Markov Model technique that is often used in life-course models to understand how individuals transition into different major life statuses (cohabitation with parents, partners, and children, as well as different marital statuses).

The data on public opinion is not consistently available for all countries and all years, unfortunately. For example, in a sample of 139 countries over 1990-2014 there are 3,475 possible country-years of data, but only 936 of those country-years have a measure of public opinion. The measures of public opinion used to create the index come from LGBT-related questions on a variety of surveys, such as the World Values Survey, the Eurobarometer, the International Social Survey Programme, and the Gallup World Poll. Because the questions vary across country and over time, and because no countries have public opinion data in every year, a statistical procedure is used to estimate a measure called the **Global Acceptance Index** in each year for each country that ranges from zero to ten. The procedure to estimate the level of acceptance is summarized in Flores and Park (2018b).

While public opinion is a reasonable measure of inclusion to test, the disadvantage of using this index to measure inclusion of LGBT people is that it is not a direct measure of public opinion in every year for every country. The Global Acceptance Index is an <u>estimate</u> of the degree of LGBT acceptance, and as such we depend on the statistical model to make good estimates about the level of public acceptance and its trend over time. For countries with very few public opinion surveys over the 25 years, the values of the Global Acceptance Index are not very precise in some years. Also, the construction of the index results in some countries getting values of the index that vary in the same way (they go sharply up or sharply down in the same years), so the use of this index in GDP regressions might be inappropriate. And since higher income countries with more public opinion data will have more accurate and complete measures of the Global Acceptance Index than do lower income countries, the measured correlation between GDP per capita and acceptance may be statistically biased, that is, either too high or too low. Unfortunately, in the absence of more complete and consistent data on public opinion across countries, other measures of public acceptance are simply not available.

Economic measures: We use data on economic variables from the Penn World Tables (PWT), version 9.0, for 1990-2014 (Feenstra, et al., 2015). The producers of the PWT data have adjusted values across countries for differences in currencies, inflation, and purchasing power of local currencies. We use six key PWT variables: real GDP per capita, employment, openness of the economy (share of exports plus share of imports), capital investment, total population, and human capital.

GDP per capita is not a perfect measure of economic development. It leaves out important unpaid work (such as household labor), and it counts positively certain kinds of harmful output, such as pollution. In addition, income inequality within countries means that GDP per capita can rise without making all people better off. In spite of these drawbacks, GDP per capita is the most commonly used and widely available measure of economic development for making cross-country comparisons of this kind.

The method used here follows that in Badgett, et al, 2014.[8] In merging the PWT data with our indices, we are left with a sample of 141 countries that have data on laws and 120 countries that have measures of the legal environment and global acceptance.

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[8] We use a fixed-effects regression that controls for country-level differences using the xtreg procedure in Stata. This approach captures the effect of unobservable factors that affect a country's level of economic development and assumes those factors do not change over time. We also include year dummy variables in the models to control for other unobservable factors in a given year that may influence economic development, change contemporaneously from year to year, and are common across countries. We cluster standard errors by country to reduce potential bias that results from serial correlation in the dependent variables.

FINDINGS

To better understand the association between inclusion and GDP per capita, we report here the results of the full statistical model. After running the regressions predicting GDP per capita with one measure of inclusion and the other economic characteristics, our focus is on the coefficient on the inclusion variable. That coefficient represents the impact of changing the inclusion measure by one unit. Those coefficients are presented in Table 1.

Using the Legal Count Index, the coefficient reported in Table 1 captures the effect of passing one more law on GDP per capita. The first model (model 1) shows that the Legal Count Index is positively correlated with GDP per capita. Having one additional right is associated with an additional $1694 in GDP per capita, and that effect is statistically significant (i.e., unlikely to be a result of chance).

Model (2) replaces the Legal Count Index with the Legal Environment Index. Here each dummy variable reflects the difference in GDP per capita relative to the "no inclusion" legal environment (i.e., no laws) for a country in a particular year. In general, countries in each of the environments with at least some inclusion have a higher per capita GDP than the no inclusion situations, but only the "most inclusion" environment has a statistically significant effect (at the 5% level) of $8259 in additional GDP per capita. In other words, we cannot reasonably reject the possibility that the effect of the less inclusive legal environments on GDP is zero since the effects are not statistically significant.

Model (3) replaces the legal variable with the Global Acceptance Index. After controlling for other factors, the Global Acceptance Index is positively correlated with GDP per capita and is statistically significant at the 10% level. A one point change in the GAI is associated with an increase in GDP per capita of $1506. However, it is not possible to translate a one point change in the GAI into a direct change in common public opinion measures. One way to understand the result, though, is to note that a one point increase in the GAI was seen in the United States between the early 1990s and post-2010, going from approximately four to five over that time period. Another way is to note that in 2014, there was a one point difference between New Zealand (5.4) and Peru (4.4) and Vietnam (4.4).

All three models show at least some positive association between a measure of inclusion and GDP per capita, consistent with prior research. We can extend the research by putting both a legal index and the GAI into the models to see which appears to be more important in explaining GDP per capita. Of course, the GAI is highly correlated with both legal indexes, but that correlation will mainly result in larger standard errors (that is, the precision of the estimates will be lower). As a result, the coefficients are less likely to be statistically significant.

Table 2 presents the models combining the GAI with the Legal Count Index (model 4) and the Legal Environment Index (model 5). In both cases, the legal index is statistically significant and has a coefficient that is somewhat smaller than the models with the legal index alone in Table 1—dropping from $1694 in Table 1 to $1539 in Table 2. That reduction in size suggests that the GAI accounts for some of the positive effect of the Legal Environment Index in Table 1. The coefficient on the GAI is also positive, but it is not statistically significant in either model (4) or (5).

Another extension is to ask whether an inclusive legal and public opinion environment reinforce each other. In statistical terms, we are asking whether there is an interaction effect between the legal index and the GAI. That interaction term is a new variable in which the GAI is multiplied by the LEI or LCI.

Model (6) adds the interaction term between the GAI and the LCI. The interaction term is positive, which means when countries have more laws *and* more acceptance GDP per capita is higher. In that model, the LCI and GAI terms are not statistically significant by themselves, so the interaction term suggests the effect of inclusion comes when both inclusive laws and public opinion are present. Model (7) interacts the GAI with each dummy variable for the LEI. In that model, none of the inclusion measures are statistically significant, including the interaction terms. The inconsistency in findings between model (6) and model (7) suggests that an interaction might exist between LGBT-positive public opinion and laws to improve GDP per capita, but that interaction appears to depend more on the number of laws than it does the legal environment.

To summarize, we have several key findings:

- **Inclusion is strongly correlated with GDP per capita**. Prior findings about the positive correlation between LGBT inclusion and GDP per capita are also found with three new measures of inclusion, though we cannot conclude that LGBT inclusion causes higher GDP per capita from this kind of analysis. There is also good reason to expect that countries with higher GDP per capita will be more accepting of LGBT people and more likely to pass laws ensuring rights for LGBT people. Therefore, we emphasize that this finding represents a strong correlation, or statistical association, that will require further research to assess how much reflects a causal relationship between inclusion and higher GDP per capita.

- **Laws appear to have a larger effect than public acceptance**. When we compare the impact of the Global Acceptance Index with the impact of either legal index in the same model, variations in the legal index across countries appear to be more important for explaining variation in GDP per capita than does the acceptance index. This finding could reflect the greater importance of legal rights in symbolizing and enacting inclusion of LGBT people, but it could also reflect GAI values that are necessarily imprecisely measured for countries with little data on public opinion.

- **Laws and public acceptance may reinforce each other**. Adding a variable that measures the interaction between legal counts and acceptance suggests higher levels of legal rights and of public acceptance reinforce each other with regard to GDP per capita. However, we do not see that pattern between interactions of acceptance and the legal environment, so the interaction effect is not consistent when comparing different ways of measuring legal rights.

CONCLUSION

This paper uses three new measures of LGBT inclusion to test the proposition that LGBT inclusion increases economic performance, measured as GDP per capita. If that proposition is correct, we should see that countries with more inclusive environments have higher levels of GDP per capita than countries with less inclusive environments. The models tested here confirm that prediction, showing that all three new measures of inclusion—two legal measures and the Global Acceptance Index—are positively associated with GDP per capita in the 1990-2014 time period.

Those findings are consistent with past research and also provide tentative support for two new dynamics that will be important to consider in future research. First, our results suggest that legal rights may be more closely tied to GDP per capita than is the Global Acceptance Index.

Second, in one of the models that we estimated, having greater levels of acceptance plus more rights appears to be strongly correlated with GDP per capita. This interaction effect might not be surprising since it could reflect an intuitively plausible dynamic in which LGBT-supportive public opinion makes laws more likely, and/or LGBT-supportive rights might make public opinion more supportive. So laws and acceptance could go together for that reason. Acceptance and legal rights might actually reinforce each other, turning the promise of legal rights into practical, on-the-ground inclusion when public opinion is supportive of LGBT people. Future research should explore better measurements of rights, acceptance, and how they interact.

Taken as a whole, this paper provides significant support for linkages between LGBT inclusion and stronger economies at the macroeconomic level. Even if some of the positive correlation between inclusion and GDP is related to a cultural or political feedback effect, where countries become more inclusive when their economies are stronger, at least some of the correlation is likely related to the positive impact of inclusion on the economy. The findings here suggest that passing laws to recognize the rights of LGBT people in participation in the marketplace, families, and important institutions may have positive effects on the economy. Also, efforts to improve public attitudes toward LGBT people may have positive effects on the economy, either alone or in combination with legal rights.

More broadly, these linkages have implications for economic development policies, suggesting that they will be more effective if they are inclusive of LGBT people and enhance LGBT people's education, health, and other human capital. Also, programs that are designed to reduce violence, discrimination, and stigma against LGBT people will remove barriers to full participation in the economy, giving LGBT people—and the overall economy—the opportunity to realize their full economic potential.

ACKNOWLEDGMENTS

TABLES

Table 1. Basic models of GDP per capita (dependent variable) and LGBT inclusion measures

	Legal Count Index	Legal Environment Index	Global Acceptance Index
Model	(1)	(2)	(3)
Legal Count Index			
	1694.1** (497.7)		
Legal Environment Index			
No inclusion (omitted)			
Decriminalization		3660.2 (4412.5)	
Some inclusion		2495.8 (3049.7)	
Greater inclusion		4910.9 (3704.6)	
Most inclusion		8258.9 (4039.5)**	
Global Acceptance Index			
			1505.9 (833.8)*
Number of Countries	141	120	120

All models include variables for employment, openness of the economy (share of exports plus share of imports), capital investment, total population, human capital, year dummies, and country-level fixed effects.
Standard errors for coefficients are in parentheses.
*Indicates statistically significant at 10% level
**Indicates statistically significant at 5% level

	Legal Count Index & Global Acceptance Index	Legal Environment Index & Global Acceptance Index	Interaction	Interaction
Model	(4)	(5)	(6)	(7)
Legal Count Index				
	1539.1** (524.8)		826.4 (1396.7)	
Legal Environment Index				
No inclusion (omitted)				
Decriminalization		3633.6 (4432.5)		21296.8 (17403.7)
Some inclusion		2302.2 (3121.4)		3187.4 (10543.2)
Greater inclusion		4447.2 (3857.9)		8185.9 (10211.6)
Most inclusion		7335.1 (4254.7)*		62.9 (12668.5)
Global Acceptance Index				
	680.4 (837.6)	955.2 (767.9)	-495.5 (784.4)	3164.0 (2025.6)
Interaction: LCI * GAI				
			518.8 (272.0)	
Interactions: LEI & GAI				
Decrim * GAI				-5203.7 (3956.6)
Some inclusion * GAI				-777.1 (2465.5)
Greater inclusion * GAI				-1576.2 (2373.7)
Most inclusion * GAI				379.0 (2728.9)
Number of Countries	120	120	120	120

NOTES

All models include variables for employment, openness of the economy (share of exports plus share of imports), capital investment, total population, human capital, year dummies, and country-level fixed effects.

Standard errors for coefficients are in parentheses.

*Indicates statistically significant at 10% level

**Indicates statistically significant at 5% level

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