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SPECIAL DATA FEATURE

A New Dataset on Infant Mortality Rates, 1816–2002*

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Systematic data on annual infant mortality rates are of use to a variety of social science research programs in demography, economics, sociology, and political science. Infant mortality rates may be used both as a proxy measure for economic development, in lieu of energy consumption or GDP-per-capita measures, and as an indicator of the extent to which governments provide for the economic and social welfare of their citizens. Until recently, data were available for only a limited number of countries based on regional or country-level studies and time periods for years after 1950. Here, the authors introduce a new dataset reporting annual infant mortality rates for all states in the world, based on the Correlates of War state system list between 1816 and 2002. They discuss past research programs using infant mortality rates in conflict studies and describe the dataset by exploring its geographic and temporal coverage. Next, they explain some of the limitations of the dataset as well as issues associated with the data themselves. Finally, they suggest some research areas that might benefit from the use of this dataset. This new dataset is the most comprehensive source on infant mortality rates currently available to social science researchers.

Introduction

A significant lacuna exists in the availability of an infant mortality rate dataset that is broad in both geographic and temporal coverage. Annual information for each country in the international system had not been gathered into one central database despite several regional attempts. This information is of interest to a wide variety of social science researchers in demography, economics, sociology, and political science. Of particular interest to political scientists, interested in conflict processes, was the value of these data to alternatively measure development and indicate the extent to which governments provide for the economic and social welfare of citizens, both of which are correlates of conflict.

The advantage of infant mortality data concerns its availability for more countries than measures of GDP per capita – often used to measure economic development – and its sensitivity to the distribution of economic resources within a society. Its sensitivity enables questions about how

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governments promote economic development and decide who benefits from economic growth, and what conditions make conflict likely. For example, is it just poverty or the distribution of economic resources within a society that prompts civil conflict? Such questions are difficult to ask with measures like GDP per capita which cannot address issues of societal distribution, such as who has access to economic resources and how well do governments provide for the economic and social welfare of citizens.

The most comprehensive existing datasets come from the United Nations and are available on its website. UN coverage begins in 1950 with the reporting of five-year average infant mortality rates (IMRs). Separately, annual yearbooks are also published. In contrast, studies of conflict processes begin in 1816 with worldwide annual data listing when countries become involved in intrastate or international conflict. Yet, information about economic development is distinctly limited. For some countries, there are measures of GDP per capita or energy consumption, both used as proxies for economic development, dating back into the 19th century. However, each is plagued by an inability to reflect distributions of economic resources within a society. We have, as a result, little information about how well governments treated their citizens between 1816 and 1950. Likewise, the generated infant mortality information was limited to bidecadal summaries for years following 1950.

Thus, there is a need to create an inclusive dataset. We believe a comprehensive infant mortality dataset has several valuable advantages for social scientists: (1) it serves as an alternative measure of economic development and as a good indicator of how governments treat citizens; (2) it covers more countries and years than previous attempts; and (3) it indicates the distribution of economic resources within a society better than alternative measures.

What Types of Research Use Infant Mortality Rates?

Research examining rates of infant mortality are of interest to a variety of researchers including demographers and those interested in health and education spending, socio-economic status, and regime characteristics.[1] Finally, a number of articles have used infant mortality as a measure of economic development, connecting infant mortality with domestic conflict (Esty et al., 1998, 1999; Goldstone, 2002; Urdal, 2005). This research examines infant mortality as an independent factor affecting intrastate processes.[2]

Infant Mortality as an Independent Variable

Some have argued the importance of demographic stress on the probability of internal conflict (Davies & Gurr, 1998; Goldstone, 2002). Rapid demographic changes can strain a government's capacity to adequately provide for the welfare of citizens (Henderson, 1993; Poe, Tate & Keith, 1999). Increases in population density also bring people into closer contact with each other. Both stresses create opportunities for political entrepreneurs to recruit supporters for their causes, increasing the probability of anti-government behaviors (Mason, 2004).

Other research found that IMRs are an important predictor of internal conflict (Urdal, 2005). The State Failure Task Force (SFTF) consistently found infant mortality among the most robust indicators discriminating between failed and stable states (Esty et al., 1999). However, these scholars do not believe a direct link exists between infant

[1] The spatial and temporal coverage of existing IMR datasets is in the data appendix.
[2] In the data appendix, we review the literature utilizing IMR as a dependent variable.

mortality and state failure, rather infant mortality acts as an indicator 'for the overall quality of material life' (Esty et al., 1999: 51); it taps into a variety of broad material standards of living; and it is strongly correlated with democracy and economic performance. 'In addition, countries with above-world median levels of infant mortality have, other things being equal, three times the risk of state failure as compared with countries with below median levels of infant mortality' (Esty et al., 1999: 53). The SFTF researchers present a good case for the utility of infant mortality rate measures in state failure research. We follow their lead here but focus on expanding the domain of existing data. Later, we discuss the similarities between our dataset and theirs.

The Value of a Comprehensive Infant Mortality Rate Dataset

This dataset represents the first comprehensive effort to collect infant mortality data for all independent countries between 1816 and 2002. The assembly of this dataset is an important resource for a variety of research programs, including those studying intrastate and interstate conflict, since it can be used both as a better proxy for economic development than GDP per capita and as a good indicator of government respect for the welfare of its citizens.

Infant Mortality as a Measure of Respect for Economic and Social Welfare

The infant mortality rate (IMR) is a sensitive measure to the extent that a government provides internationally recognized rights to food, shelter, and healthcare to its population (Pampel & Pillai, 1986; Riphenburg, 1997; van der Berg, 1998; Willie, 1959). Thus, the IMR provides both a good measure of economic development and information about how effectively a government provides for the economic and social welfare of its citizens. *Ceteris paribus*, if the IMR increases, government is less adequately providing for the welfare of its citizens. One benefit of using the IMR to explore government respect for citizens' welfare (instead of social policy expenditure data) is the wider availability of IMR both geographically and temporally. In contrast to national figures on social policy spending, IMRs are collected in regularly scheduled censuses.[3] Thus, despite the imperfections in IMR data,[4] we argue they still provide a good proxy for economic development and government respect for citizen welfare.

Infant Mortality as a Measure of Economic Development

Most existing research describing and linking higher levels of economic development with reduced probabilities of conflict both within and between countries, as well as reductions in the probability of government-sanctioned human rights violations, has used GDP per capita to measure development (e.g. Collier & Hoeffler, 2004; Hegre, 2000; Maoz & Russett, 1993; Poe, Tate & Keith, 1999). Researchers have collected data on GDP per capita (Gleditsch, 2002) and energy consumption as a measure of economic development (Singer & Small, 1972). A comparison of our data with the post-1950[5] GDP data compiled by Gleditsch (2002) indicates that we have 6,983 cases relative to 7,109 GDP-per-capita observations. Although we have fewer observations in this particular time period, the temporal domain of our dataset is much longer, suggesting the broader applicability of our data.

A number of difficulties remain in the usage of GDP per capita. For many countries,

[3] To be sure, the intervals between the collection of infant mortality information vary both within countries over time and across countries over longer temporal periods.

[4] See 'Describing Infant Mortality', below.

[5] Gleditsch's (2002) cases differ slightly from ours; he does not use the COW state system list to determine inclusion in the dataset.

economic development measures using GDP per capita do not exist. Moreover, the missing data problem is not random; instead, data are missing for countries that are poor and, according to existing research, more likely to become involved in conflict. Thus, limitations in using GDP per capita to reflect economic development curtail efforts to comprehensively examine countries differing in their likelihood of experiencing human rights violations and intrastate and interstate conflict. To overcome that problem, the Correlates of War (COW) project[6] (Singer & Small, 1972) generated data on energy consumption for the period 1816–2001 as an alternative to GDP per capita data used previously (e.g. Bremer, 1992; Buhaug, 2005; Hegre et al., 2001).

A comparison of our dataset indicates that, over this period, we have 10,148 observations relative to 12,601 energy-consumption observations. The COW codebook points out several important cautionary notes about these energy data: (1) they are the most volatile category; (2) they are interpolated for many states before 1900; and (3) there are energy data missing for a number of cases between 1991 and 1993, whereas we have only two missing observations. Additionally, almost 1,400 energy-consumption observations are coded 0, though energy consumption was likely greater. Comparisons among the number of observations aside, several scholars have used GDP per capita and energy consumption to tap into economic development. However, our measure is correlated with each of these, at –.54 and –.17, respectively. Thus, neither of these measures is closely related to IMR, suggesting that, as a proxy for development, neither energy usage nor GDP per capita is satisfactory, since they both miss issues of distribution. If GDP per capita and energy consumption captured distributional issues, then their correlation with IMRs would be higher. While the collection of data on energy consumption has improved our ability to measure economic development, distributional issues remain. Several arguments have been made that economic growth which benefits few should not be considered economic development (Hicks & Streeten, 1979; Sen, 1999).

Infant mortality measures are sensitive to distributional issues n– especially, how well governments provide for their citizens' economic and social welfare (Pampel & Pillai, 1986; Riphenburg, 1997; van der Berg, 1998; Willie, 1959). Indeed, a few studies have utilized IMRs rather than GDP per capita because of their sensitivity to broader welfare issues (e.g. Esty et al., 1999; Urdal, 2005). Thus, our dataset's coverage is more comprehensive than previous efforts at generating infant mortality datasets, it has better geographic and temporal coverage than measures of GDP per capita, and it does not suffer from distributional issues plaguing other economic development proxy measures (i.e. GDP per capita and energy consumption).

Describing Infant Mortality

IMRs are often included among other descriptive country indicators (e.g. birth rate, mortality rate, population size, and age distribution). Such information is typically collected in a systematic fashion by some national-level authority. The IMR is the number of infants who die before the age of 1 out of every 1,000 infants born. Since 1950, IMRs are reported regularly to the UN by all member countries because of its stated interest in the 'quality of human life'. Since IMRs are considered among the most basic country-level demographic indicators, they are much more likely to be reported in the 20th century for any given year than social policy spending figures.[7] The IMR is

[6] http://www.correlatesofwar.org.

[7] Reporting of IMRs is more widespread than actual social policy spending rates. Kimball attempted to collect social policy spending data (as % of GDP) for all states between 1971 and 2001. An extensive search yielded only 2,025 observations (40%) of a possible 5,142 observations; however, there are 5,041 observations for IMR data (98%).

sensitive to changes in social policy spending such that governments providing for the welfare of larger numbers of citizens will have lower rates of infant mortality. The IMR provides one avenue to capture the extent to which a government does respect its citizens' economic and social welfare.

Describing the Dataset

The independent states included in this dataset arise from the Correlates of War state-system membership criteria and its expansions (Small & Singer, 1982). Basic state-system membership criteria are a population greater than 500,000 and 'a fair degree of sovereignty and independence' (Singer & Small, 1972: 20).[8] These give us 13,212 country-year observations for the period.[9]

Our dataset reports annual IMRs for every state in the international system from 1816 until 2002. The IMR is the number of deaths of infants (less than 1 year of age) per 1,000 live births [PTLB] (excluding stillbirths). In comparison to national policy spending estimates, the IMR uses the same metric, eliminating the need to convert figures into some internationally recognized standard (like the US dollar), and is not plagued by measurement distortions associated with inflation and exchange rate fluctuations. Infant mortality data are reported to national governments by hospitals, by subnational government health-related institutions, or in census surveys. To obtain these data, we accessed more than 50 sources, including various United Nations Demographic Yearbooks, national statistical databases, previous country case studies, and regional research on IMRs.[10]

Exploring the Infant Mortality Rate Data

Though IMRs are reported for significantly longer periods than social expenditures, there are still many missing values from the 19th century. The average IMR from the data collected in the 19th century was 198 deaths PTLB and the variable ranged between 91 and 355 deaths PTLB. We located data on about 30% of the possible cases (i.e. 887 of 2,917 observations). This clearly limits the applicability of those data before 1900 to the

[8] See Gleditsch & Ward (1999) for a discussion of the criteria.
[9] We generated the data-frame using EUGene (Bennett & Stam, 2000).

[10] See the accompanying codebook for more information. Kimball translated many sources for Africa and South America from French and Spanish respectively. In the rare event of multiple sources of data for an individual year, we first used sources that represented government-collected data, then we went to those that were identified as 'reliable'; if no sources make such a claim, then we relied on UN demographic yearbook data.

Table I. Infant Mortality Rate Coverage by Time Period

	1816–99	*1900–99*	*1900–49*	*1950–99*	*2000–02*	*1816–2002*
Number of possible observations	2,917	9,721	2,773	6,948	574	13,212
Number of actual observations (%)	887 (30)	8,691 (90.4)	1,898 (69)	6,793 (98)	570 (99)	10,148 (77)
Mean	198.25	80.3	121.89	68.68	42.9	88.49
Standard deviation	59	57.79	55.29	52.92	38.41	66.85
Range	91–355	2.4–340	7.6–340	2.4–304	2.3–197.8	2.3–355
Average number of states in system	35	121	57	147	191	105

Percentages of possible total in parantheses.

Table II. Infant Mortality Rates for Selected Countries

	1850	*1900*	*1950*	*2000*
United Kingdom	162	141	35	5.5
United States	217.4	145	35.5	7
Germany	*297*	*229*	42a	4.3
Spain	*225.3*	204	*64*	4.6
Japan	–	*249*	49a	3.4

[a] Values for 1955 (Federal Republic of Germany) and 1952 (Japan) when these countries were recognized as independent.

entire world; however, there is decent coverage of Europe. We collected 45% of the possible 19th-century observations for Europe. The only other regions with partial coverage are Asia (37%) and the Americas (8%). More complete coverage is found when one examines the 20th century.

The data coverage for the 20th century is superior. In part, this is due to a general institutionalization of census-taking in many states during that century, resulting in greater regularity and precision in reporting. The average IMR for the 20th century was 80 deaths PTLB with a range between 2.4 and 340 deaths PTLB. The average IMR in the 20th century was less than half its level in the previous century. The lowest infant mortality levels have dropped considerably relative to the 19th century, although the highest levels remained similar to those of the previous century. We report 90% of the possible cases for the world during the 20th century (i.e. 8,691 of 9,721 observations). Table I reports IMR summary statistics by time period. The table suggests that, despite our limited 19th-century coverage, there remains excellent coverage for the entire period, as more than three-quarters of the cases are located. Moreover, the table suggests we have relatively reasonable coverage before 1950 (when the UN started systematically collecting infant mortality data) with about 50% coverage of potential cases between 1816 and 1949. The average IMR has decreased across time, and the variation around those rates has narrowed, based on the data we have collected for the 21st century.

Table II compares the IMRs for selected countries in four different years. Cells with italicized entries indicate country-years

Table III. Infant Mortality Rate Summary Statistics (1816–99) by Correlates of War Region

Region number	*1*	*2*	*3*	*4*	*5*	
COW region	*Europe*	*Middle East*	*Africa*	*Asia*	*North and South America*	*Total*
Number of possible observations	1,736	267	2	106	806	2,917
Number of actual observations (%)	782 (45)	(0) (0)	0 (0)	40 (37)	65 (8)	887 (30)
Mean	193.9	–	–	314.9	178.1	198.02
Standard deviation	55.4	–	–	35.9	20	59
Range	91–332	–	–	249–355	150–226	42–355

Percentages of possible total in parentheses.

Table IV. Infant Mortality Rate Summary Statistics (1900 to 1999) by COW Region

Region number *COW region*	*1* *Europe*	*2* *Middle East*	*3* *Africa*	*4* *Asia*	*5* *North and South America*	*Total*
Number of possible observations	2,687	1,101	1,773	1,708	2,452	9,721
Number of actual observations (%)	2,571 (96)	857 (78)	1,648 (93)	1,489 (87)	2,126 (87)	8,691 (90.4)
Mean	60.7	75.08	115.2	79.05	79.9	80.2
Standard deviation	56.9	49	44.35	58.79	58.3	57.79
Range	2.4–317	6–229	11.5–285	3–331.5	5–340	2.4–340

Percentages of possible total in parantheses.

where that state was autocratic, since IMRs may be higher in these states (Zweifel & Navia, 2000; Przeworski et al., 2000: 239; Bueno de Mesquita et al., 2003: 192–194) and a cell with a dash indicates the country was not an independent state in that year according to the COW list. This table provides additional support for the previous discussion about trends in IMRs. IMRs have decreased across time in all selected countries, dropping from more than 160 deaths PTLB in 1850 to below 10 deaths PTLB by 2000. Additionally, the variation across the selected countries decreases as well, from a range of about 130 in 1850 to about 100 in 1900 and further narrows during the 20th century, from about 30 in 1950 to about 4 in 2000. Finally, the table suggests that IMRs tend to be higher in non-democratic states, as the italicized cells indicate, which is consistent with the finding by Bueno de Mesquita et al. (2003: 194) that 'infants have a vastly better prospect of surviving … if they are born in a democratic, large-coalition society than if they are born anywhere else'.

Tables III and IV report IMR summary statistics by century, disaggregated across the COW-defined regions. Table III compares our data on regional coverage to the possible coverage. It highlights the limited worldwide coverage during the 19th century. We attribute the limited coverage to a lack of adequate resources for reporting IMRs during this period. Moreover, a time lag likely exists between the inception of collecting census data and the institutionalization of its reporting. However, we did access some data for several countries outside Europe, including the United States, Mexico, Venezuela, and Japan. While caution should be exercised in drawing conclusions about the data collected for the 19th century, the results reported here suggest that IMRs in Asia were substantially higher than in Europe and North and South America.

Regional IMR coverage for the 20th century is much higher (about 90.4%), according to Table IV. Our excellent coverage of Europe is not driving the total coverage, as we have more than four-fifths of the coverage for all regions except the Middle East. The average IMR is lower in Europe than any other region during this period. The African region had the highest average rate while North and South America had the widest IMR range during this century. Comparing the standard deviations across the regional averages of IMRs indicates that the variation across regions is relatively stable, suggesting the data are normally distributed by region.

Table V. Infant Mortality Rate Summary Statistics (2000–02) by COW Region

Region number	*1*	*2*	*3*	*4*	*5*	
COW region	*Europe*	*Middle East*	*Africa*	*Asia*	*North and South America*	*Total/Average*
Number of possible observations	138	60	141	130	105	574
Number of actual observations (%)	135 (98)	60 (100)	141 (100)	129 (99)	105 (100)	570 (99)
Mean	11.8	33.6	88.8	44.5	25	42.99
Standard deviation	13.8	18	32.2	35.4	14.6	38.41
Range	2.6–83.4	7.5–70	16.6–197.8	2.3–172	5–81.1	2.3–197.8

Percentages of possible total in parantheses.

Table V describes the regional IMRs for the first several years of the 21st century. While the number of observations is clearly limited for the 21st century, there are several interesting findings. Average IMRs in North and South America are markedly lower (by about 75%) in this century. Rates in the Middle East and Asia are half their respective rates in the 20th century. European rates are about one-sixth of the previous rate. The standard deviations and ranges of these rates are smaller in Europe, the Middle East, and North and South America relative to Africa and Asia. Africa still has the highest average IMR (88.8 deaths PTLB), which is nearly double the second highest regional average found in Asia (44.5 deaths PTLB). Average regional rates reported in the previous tables indicated Europe has some of the lowest IMRs in the world, while Asia and Africa have some of the highest. While the IMR coverage is comprehensive (especially after 1860), we still have some concerns about the remaining missing cases, as well as the degree to which their absence is non-random.

A Brief Look at Demographic Factors and Conflict

The relationship between demographic factors and conflict has been addressed by several scholars (e.g. Goldstone, 2002; Homer-Dixon, 1991; Moller, 1968; Mesquida & Weiner, 1999; Urdal, 2005). Population-related pressures can create demands on the government to provide equal access to increasingly scarce resources and may, in fact, result in political violence, when citizens feel their demands are not met. Existing analyses vary with respect to the temporal and spatial domain, making direct comparisons difficult. Moreover, several methodological issues are associated with existing research (see Goldstone, 2002: 12). Goldstone (2002: 5) noted, in a thorough review of the existing literature, that 'certain demographic changes, such as a rise in infant mortality – aside from whatever role they may have as causes – can be powerful indicators of coming political violence'. Urdal (2005) suggests rising IMRs increase the chances a state engages in conflict. We replace Urdal's infant mortality measure with ours and reanalyze his data, yielding similar results – though the coefficients using our data tend to be a little greater.[11] Moreover, our IMR measure is correlated with the IMR reported by Urdal between 1950 and 2000, at .92, and with data reported by the State Failure Task Force between 1955 and 1995, at .92, suggesting a high degree of congruence between our data and existing datasets.[12] Finally,

[11] Some cautionary notes apply. See appendix.
[12] Data reported by both Urdal (2005) and the SFTF (Esty et al., 1999) are collected from only UN demographic sources. See appendix.

our expanded temporal domain allows us to report an additional 2,860 cases.

Data Issues and Non-Random Missing Cases

IMRs are valid only to the extent that governments report those data accurately. 'Reliability is concerned with the accuracy with which a measuring instrument measures whatever it measures' (Kerlinger & Lee, 2000: 642) or a lack of distortion. One way to think about reliability is to consider whether the error in measurement is systematic or random. The reliability issue arises because we collect infant mortality information through published sources rather than measure it ourselves. These data sources may underreport the 'true' IMRs, generating systematic distortion or imprecision in the data.[13] The main source of that imprecision is government behavior. Governments of countries that have the highest IMRs are more likely to underreport those data. The logic is intuitive: if the reported IMRs suggest the government is poorly providing for the welfare of its citizens, then it has every incentive to avoid blame by reporting lower IMRs. States may report 'false' IMRs for numerous reasons, including limiting the ability of opposition groups to criticize the current government's performance and decreasing the ability of other states to demand reforms which may destabilize the incumbent regime.

Another source of minor distortion is the fact that most governments report IMRs based on death counts generated by institutions charged with healthcare provision. This underreporting is more prevalent in countries where greater percentages of infants are born without the knowledge of healthcare authorities, outside the hospital setting, or where the institutions of information collection and dissemination are least developed, as in most developing countries (Gelbrand et al., 2002). Additionally, infants born with low birth weight are 25–30 times more likely to die in infancy. Of all low-birth-weight infants, 90% are born in the developing world (Gelbrand et al., 2002). Thus, infants in the developing world are more likely to come into this world unassisted by medical professionals and to have a relatively low birth weight; both of these increase their chances of dying in their first year.

Another source of minor IMR distortion concerns the underreporting of figures for minority groups discriminated against by their own government. These groups are also unlikely to be included in infant mortality statistics. One expects those groups to receive some of the worst healthcare and have higher IMRs relative to the majority of the population (Harff & Gurr, 2004) suggesting some underreporting by select governments.

Many sources we referenced suggested using caution in treating their reported figures as wholly accurate; thus, even some of the best recognized IMR data sources, such as the United Nations Demographic Yearbook, admit data imprecision. A reference number was provided for each individual case in the dataset permitting those interested to access the relevant source for each value presented. For any source suggesting uncertainty regarding the reliability of a particular datapoint, the relevant reference number was followed with a (.1) (e.g. 50.1). Despite the use of sources whose information may include distortions in the data, we still believe the dataset, in general, captures the concepts of interest: economic development and, more narrowly, government respect for citizen welfare.

It is also possible that reliability issues exist within the dataset generated, as over 50

[13] We introduced some imprecision by completing data series using the United Nation's five-year average infant mortality rate estimates for some states. These entries account for less than 12% of the entire cases in the sample and are exclusively for the post-1950 period. No cases are exclusively coded using this source. See the appendix for a discussion about the impact of registration and infanticide that may also affect the reliability of the IMR reported.

sources were accessed in its compilation. If the data are reliable, then 'applying the same procedure in the same way will always produce the same measure' (King, Keohane & Verba, 1994: 25). In an effort to ensure intercoder reliability within these data, a random sample of 4% of the coded cases was selected. The co-authors then divided those cases and accessed the indicated resources to ensure those data were reliable. Among those cases checked, 98.7% were entered correctly during the original data-entry process, suggesting it is possible, using the same sources and procedures, to reproduce observations with the same values.

Finally, the cases whose IMR observations we are missing are clearly non-random. We have poor coverage for the Middle East, in part due to linguistic restrictions, but, more importantly, some governments may strategically fail to report data on the IMR in their states. For instance, we have no data for the Yemen People's Republic, an overwhelmingly agrarian and rural society, though we believe its IMR to be substantial. Infants living in these rural areas are three times more likely than those in urban areas to die in their first year (Bagenholm & Nasher, 1989). We also have poor coverage for the 19th century as we could not find resources reporting IMRs for the early German or Italian states, or for some major states like China, Turkey, and Russia. Some missing observations might arise because the country did not collate or publish IMR data during that year. Additionally, internal violence, external violence, or violent political transitions interrupt the normal data-collection processes and lead to some systematically missing observations. For example, we lack data for both North and South Vietnam during the most violent years of the Vietnam War. Thus, there are some identifiable conditions likely to increase the chances that an observation is missing from these data. We do not think the data presented are systematically biased, since these reasons account for so few cases, especially in the 20th century.

Notwithstanding the caveats about the validity of IMRs outlined previously, we believe they do genuinely capture the concepts of economic development and government respect for the economic and social welfare of its citizens.

Conclusions

We have introduced a new dataset on annual IMRs for all independent states in the world that is of interest to demographers, sociologists, and political scientists. These data might inform relevant questions about economic development, social welfare, government policy, and demography for states. Examples of possible research questions to be explored using these data are: how do public expenditures affect IMRs across states? What is the relationship between regime type and IMRs? What is the relationship between IMRs and internal and/or external conflict? This dataset is not only the largest in geographical scope but also in temporal domain, suggesting scholars may use it to analyze governmental behavior across time in both a comparative and international context.

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