

A Guide to International Data Sources

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I. Introduction

Forensic economists are often asked to calculate economic damages in cases that are tried in the United States but involve the death or injury of a citizen or resident of a foreign country. Commonly called *international cases*, they can range from a single tourist who is killed or injured when visiting the United States to mass torts such as plane crashes or product liability claims. The single plaintiff cases are typically relegated to state courts whereas the Federal District Courts are often deemed to have jurisdiction over the determination of liability and subsequent economic damages in mass torts. In these and other types of international cases, macroeconomic data compiled by various governmental or private sources within the United States are of very limited use to the forensic economist preparing economic loss estimates. The decedent or injured party's economic, demographic, and social environment may differ significantly from individuals living in the United States. Rather, they are impacted by the macroeconomic conditions of their country of domicile.

As in the United States, economic loss estimates in international cases can only be accomplished when appropriate data are available. It is locating and correctly applying the underlying data to the case at hand that presents the greatest challenge to the forensic economist when working in the context of an international case. The purpose of this paper is to provide an overview of the data sources that are available to assist the forensic economist in preparing reasonable economic loss estimates in international cases.

The paper is organized as follows. Part II provides details regarding the sources of various types of data that are useful to the forensic economist in determining economic losses, along with an indication of some of the limits of the data. Part III presents special issues relevant to international cases. Summary and concluding comments are offered in the last section of the paper.

II. Data Sources in International Cases

This section presents some of the most common data sources available to the forensic economist. They have been divided into three categories: primary data, non-primary data, and private/proprietary data sources. The forensic economist working on an international case may need to draw upon a wide array of these categories of data sources simultaneously. These sources will often

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include primary data compiled and maintained by national governments (most often a central bank or an economic/statistical agency) and from non-primary data reported by quasi-governmental agencies of various types such as the International Monetary Fund (IMF), the United Nations (UN), and the World Bank. Additionally, data are sometimes obtainable from private/proprietary sources, including large accounting firms or from a variety of specialized private consulting companies. In each case, however, data quality and compatibility can be a concern, particularly in the context of Federal District Court and possible *Daubert* challenges.

Primary Data Sources

Primary data are typically available from large scientifically structured surveys and data bases prepared and administrated by a governmental agency or entity based on internationally accepted methodologies. The advantage of primary data sources is that they address in detail a specific research question, are relatively current, and are from a known entity. These may be important considerations if the economist's analyses are challenged.

Central Banks¹

A primary source of macroeconomic data on a foreign country is that country's central bank. In many instances, only scant data on a foreign country will be available from such traditional data sources such as the IMF, the UN, and/or the World Bank. In these instances, that country's central bank may be the only source. Even the most underdeveloped or emerging market country will have a central bank where macroeconomic statistics are kept. In fact, the country's central bank is usually the source for some of the macroeconomic data that is provided to the IMF, the UN, or the World Bank which in turn reports it as a secondary data source.

Governmental Statistical Agencies and Institutions²

Many countries have government statistical agencies and institutions that publish a substantial quantity of detailed historical macroeconomic data. These entities are typically the primary data sources relied upon by the IMF, the UN, or the World Bank. Making contact with economists in these types of agencies and institutions will often yield much of the basic information needed by a forensic economist with an international case.

¹Examples of central bank websites include:

Brazil www.bcb.gov.br

Guyana www.bankofguyana.org.gy

United Arab Emirates www.uaecb.gov.ae

A listing of central bank websites from around the world (from Albania to Zimbabwe) can be found at www.bis.org/cbanks.htm

²Examples of government statistical agency websites include:

United Kingdom www.statistics.gov.uk

Guyana www.statisticsguyana.gov.gy

St. Lucia www.stats.gov.lc

A listing of government statistical agency websites from around the world (from Afghanistan to Zambia) can be found at www.bls.gov/bls/other.htm.

Non-Primary Data Sources

Non-primary data includes both secondary and tertiary data sources. These are data that are already in existence from the primary sources. They are simply reprinted or reported in a different format and, most often, in conjunction with other types of data.

International Monetary Fund (IMF)³

Although it is not a primary data source, a good starting point for an economist seeking a large amount of macroeconomic time series data on a foreign country reported in one place is the IMF publication, *International Financial Statistics* (IFS). The macroeconomic data contained in the IFS (from Albania to Zimbabwe) include the following: exchange rates (end of period and period averages), interest rates (including treasury bill and government bond yields, short and long-term), consumer prices, wages (average monthly earnings), unemployment rates, labor force, employment, unemployment, total population, GDP and GDP deflator. It should be noted that although data are generally available for most developed countries, there are likely to be some gaps in the data available for developing countries. When the data are available, however, one of the decisive advantages to the IMF data is that they are collected, tabulated, and presented in a standardized manner, thus rendering year-to-year or country-to-country comparisons feasible. Equally important, the data collected and reported by the IMF are all from primary data sources.

The two main IFS publications are (1) the *Annual Yearbook* which contains calendar year time series data going back approximately 10 to 12 years, and (2) the *Monthly Update* which has monthly data going back approximately nine months, quarterly data for the past two years, and annual data going back approximately seven years. Both publications are also available on-line. A third IFS publication, *Country Notes*, should also be consulted. This publication discusses each of the footnotes to the economic variables listed in the IFS on a country-by-country basis. It is also possible to speak to specific country economists at the IMF by calling the IMF at (202) 623-7000 and asking to be transferred to an economist dealing with a specific country.

World Bank⁴

The World Bank publishes a useful set of data called the *World Tables*. These data are published annually in a time series format starting approximately 20 years in the past. Included in the macroeconomic data that would be of interest to the forensic economist working on an international case are GNP per capita, GDP deflator, CPI, real earnings per employee, and life expectancy

³The IMF website is www.imf.org. The three IMF publications can be obtained through the website, by contacting publications@imf.org or by calling the IMF Publication Service at (202) 623-7430. Available by subscription are either a hardcopy, a CD-ROM or, alternatively, online access of the IFS database. All of these sources contain time series data going back to 1948. Discounts for university faculty and students are available for subscribers by any of the three methods. Single copies of the relevant publications are also available without subscribing.

⁴The World Bank website is at www.worldbank.org.

from birth. Like the IMF data, the information collected and reported by the World Bank are also from primary data sources. For some data, such as GDP figures expressed in U.S. dollars, the Bank has developed a methodology to convert the local currency figures into U.S. dollars based on purchasing power parity-adjusted exchange rates which corrects for currency misalignments.

United Nations Data Sources

The question of life expectancy often arises in an international case in situations involving a personal injury and the need for a life care plan and/or valuing a stream of lost household services. In this context, the life expectancy of the plaintiff is a key consideration. In any of these situations, a source of mortality data, by age and gender is required. Perhaps the best source of this type of data is the United Nation's (UN) World Health Organization (WHO) and the WHO Statistical Information System (WHOSIS).⁵ At the present time, the WHO maintains life expectancy data for 192 countries (from Afghanistan to Zimbabwe). The life expectancy data can be obtained for five-year intervals for historical years (1950-1995), recent years (2000-2005), as well as projections (2005-2010 and beyond). The WHO data are presented from birth and in five-year age bands (e.g. age 10 to age 15 or age 15 to age 20). While not perfect, the data will allow the economist to estimate life expectancy from a given age or to calculate the probability of living from one year to the next.⁶

The UN also publishes an annual data set entitled the *Statistical Yearbook*, currently in its 49th issue. These data are provided in a time series format over the past 10 years and include exchange rates, GDP per capita, short-term treasury bills, unemployment rates, manufacturing wage rates and the CPI. It should be noted, however, that many data series are sourced as the IMF or the International Labour Organization (discussed below), making the UN *Statistical Yearbook* a tertiary data source. Also, due to data revisions by the primary sources, non-primary publications may show different figures for some of the data.

There are five regional economic commissions operating under the umbrella of the UN. Perhaps the best known of these commissions is the Economic Commission for Latin America and the Caribbean (ECLAC). ECLAC publishes annually three main sources of macroeconomic data for this region, namely: (1) *Statistical Yearbook for Latin America and the Caribbean*, (2) *Preliminary Overview of the Economies of Latin America and the Caribbean*, and (3) *Economic Survey of Latin America and the Caribbean*. The first publication, *Statistical Yearbook*, has for each country life expectancy from birth (male and

⁵The United Nations and the World Health Organization websites are at www3.who.int and www.un.org, respectively.

⁶Another possible source of life expectancy is from various groups of actuaries. A good starting point for basic information and links is the Society of Actuaries (www.soa.org) in the United States. More importantly, most developed countries have at least one group of actuaries who are actively involved in preparing life expectancy estimates. For example, in the United Kingdom, the Institute of Actuaries can be located online at www.actuaries.org.uk. Other organizations of actuaries in other countries can be located at similar websites.

female) historically and forecasts for the 2005-2010 and 2010-2015 time periods, and labor force participation rates (male and female) historically and projections for 2010 and 2015. It also reports age brackets relative to labor market participation, unemployment rates by gender and by years of schooling, as well as time series data on real per capita GDP, real GDP growth rates, and consumer price inflation rates. The second publication, *Preliminary Overview*, gives a country-by-country detailed economic and political snapshot and economic outlook. The third publication, *Economic Survey*, is similar to the second in terms that it also has country-by-country economic analysis and macroeconomic statistics. An added feature of this publication is that there is a CD-ROM with very detailed macroeconomic data available.⁷

The UN also supports the Economic Commission for Africa (ECA). This Commission prepares an annual publication entitled *Economic Report on Africa* which contains economic data for each country and includes monthly wages by sector and unemployment rates by gender and race. Individual *Country Reports* are also available at the ECA website.⁸

UN data on Europe are available from the *Economic Commission for Europe* (ECE). This publication contains macroeconomic, gender and social data available on its website through an on-line statistical database.⁹

A good source of UN data on the Pacific Rim is the Economic and Social Commission for Asia and the Pacific (ESCAP). There are various publications and online data available from ESCAP for member countries in this region.¹⁰

Lastly, the UN provides data for Western Asia via the Economic and Social Commission for Western Asia (ESCWA). This commission provides an annual publication entitled *Statistical Abstract of the ESCWA Region*. It is available for purchase and contains a variety of macroeconomic data for countries in this region. Other ESCWA publications include *Vital Statistics in the UNESCWA Region*, *Compendium of Social Statistics and Indicators*, and *Summary: Survey of Economic and Social Developments in the ESCWA Region-2006*. These sources provide inflation and real GDP growth data, history and forecast, by country in the region.¹¹

⁷On the ECLAC website www.eclac.cl click on the English version and then go to "statistical information." All the publications are downloadable at no charge. However, the CD-ROM with the third publication is not downloadable and is only available with the hardcopy purchase of the publication.

⁸The main ECA website is www.uneca.org. The Economic Report on Africa 2005 (<http://www.uneca.org/era2005/full.pdf>) is downloadable at no charge.

⁹The ECE website is www.unece.org. The ECE has its on-line statistical data (called stat@unece) available at www.unece.org/stats/data.htm which is free to users after a simple registration is completed. The ECE also has a website with excellent links (www.unece.org/stats/links.htm#national) which contains economic data on countries throughout the world. The data at this link are arguably even better than the two websites which lists central banks and economic statistical agencies throughout the world, because this website also has available regional data within the country.

¹⁰The main ESCAP website is www.unescap.org. The online data is available by country at www.unescap.org/stat/data/statind/areaSectorIndicators.aspx. The publication *Statistical Indicators for Asia and the Pacific* is available to download at no charge from the website. The on-line data and data in the publication provide monthly economic, financial and demographic data for member countries in the region.

¹¹The main ESCWA website is www.escwa.org.lb. The *Summary: Survey of Economic and Social Developments in the ESCWA Region-2006* is downloadable at no charge.

International Labour Organization (ILO)¹²

The ILO compiles an annual publication called the *Yearbook of Labour Statistics*. The *Yearbook* contains detailed time series data on wages by occupation and/or industry, including manufacturing, by ISIC (International Standard Industrial Classification) code and CPI data (overall and for food, utilities, clothing and rent) for approximately ten years. The ILO also publishes the *Bulletin of Labour Statistics* which contains similar data and articles in the international labor arena.

Central Intelligence Agency (CIA)¹³

The CIA publishes online *The World Factbook* which has a very general overview of a country's economic, social, and political history. Although this source is lacking in detailed time series data, it is nevertheless useful for a general overview and an economic snapshot of a country, particularly political information. The *Factbook* contains data on life expectancy from birth (male and female), inflation, GDP, real GDP growth rate, GDP per capita, unemployment rate, and exchange rate information on the country in question.

European Commission (EC)¹⁴

The EC publishes annually the *Eurostat Yearbook* and *The Statistical Guide to Europe*. The EC website also has an abundance of macroeconomic data available for downloading at no charge after a short registration process is completed.

The Statistical Abstract of the World

This publication is only available in hardcopy and is useful for gathering general background data on a specific country, without getting detailed time series data. It is similar in use to the forensic economist as the CIA website.

Private/Proprietary Data Sources

Several of the largest accounting and law firms have offices in many countries throughout the world and may publish useful information on specific countries. For example, BDO Seidman, LLP publishes a series of booklets entitled *"Doing Business in ..."* Although these publications may be somewhat lacking in time series macroeconomic data, they are nevertheless one of the most useful sources for understanding the basic accounting practices, individual and corporate tax structures, and retirement information/pension struc-

(<http://www.escwa.org.lb/information/publications/edit/upload/ead-2006-1.pdf>)

¹²The International Labor Organization (ILO) website is www.ilo.org and has information on obtaining either the *Yearbook of Labor Statistics* or the *Bulletin of Labor Statistics*.

¹³The Central Intelligence Agency website is at www.cia.gov

¹⁴The European Commission (EC) website is at http://ec.europa.eu/index_en.htm. A CD-ROM containing macroeconomic data on the member countries is also available.

tures in a particular country. These types of booklets are sometimes out of date. In that case, by contacting a United States office of one of the firms, the forensic economist may be able to reach a member of the accounting firm specializing in the particular country of the plaintiff.

In addition to accounting firms, private consulting firms or other private consulting sources in foreign countries sometimes perform services that meet the needs of a forensic economist in an international case. First, the consulting firm may engage in "data gathering" activities upon request and for a fee, fulfilling much of the data needs discussed in this paper. Second, the consulting firm may already be in the "data collection" business, generating surveys or producing studies of various types for either the private or the public sector in that country. Relying on private consulting sources for international data can be a risky proposition, however, sometimes leading to a challenge under *Daubert* in Federal cases. In our experience, the use of private consulting firms or private consulting sources in international cases should be approached on a case-by-case basis.

III. Special Issues and Related Data Needs

A potentially difficult aspect of international cases occurs when the allegations involve a wrongful death. In most jurisdictions, there is a statutory requirement that the expected income of the decedent must be reduced to reflect "personal consumption." In this situation, one of the most significant data challenges facing a forensic economist is determining personal consumption, either as an absolute dollar amount or as a percentage of anticipated income. In the United States, a majority of economists rely on either the Ruble, Patton and Nelson studies (based on the Consumer Expenditure Survey) which have been published in the *Journal of Forensic Economics* or the Consumer Expenditure Survey (CES) itself, which is updated regularly, as a source of data relevant to the determination of personal consumption. Rarely have comparable studies been completed for foreign countries. In an ideal world, the best possible scenario would be to have CES-type micro data available for the foreign country, perform the regression analysis, and replicate the Ruble, Patton and Nelson tables. In the authors' experiences, these types of data are rarely available. In the very few cases where the data are available, it is a cumbersome and time consuming project to complete accurately.

A first step to obtaining the data necessary to undertake a personal consumption adjustment in a wrongful death in an international case is to determine which governmental entity produces the relevant data. Given these data, it is not uncommon to find that this same entity prepares something similar to the CES as found in the United States. An issue, however, is whether the governmental entity is willing to release the underlying information. If available, these data may allow the economist to construct estimates of the personal consumption adjustment. This approach is discussed in detail below using Venezuela as an example.

Often a forensic economist faced with the personal consumption deduction in a foreign case will have to make do with a second-best solution, but still a

solution that will yield reasonable estimates of personal consumption of a decedent. For example, the accompanying Table 1 illustrates some of the data on consumption in Venezuela available from the country's Central Bank. The table is useful because it indicates consumption across four quartiles of family income. Although the data are not at the same level of detail of expenditure categories as the United States CES, the Venezuela data nevertheless provides sufficient detail to prepare reasonable personal consumption estimates. An example of the calculations to compute personal consumption deductions by income levels and by family size in Venezuela are provided in Table 1.¹⁵

Another issue, but nowhere near as problematic as the personal consumption issue, pertains to countries where life expectancy from a given age is not available. Instead, only life expectancy from birth is obtainable. This latter situation is common in third world or lesser developed countries, where all macroeconomic data are scarce in general. In this situation it is possible to arrive at a reasonable approximation of a life expectancy from a given age in that country by comparing the life expectancy at birth between that country and the United States. The forensic economist can use the percentage difference at birth between that country and the United States and then use the United States life expectancy tables for that given age and apply the percentage difference at birth to that given age, as appropriate.

IV. Summary and Conclusions

The purpose of this paper is to provide an overview of the data sources that are available to assist the forensic economist in the estimation of economic losses in an international case involving the injury or death of a foreign national. Language barriers, data collection (for example, either under reporting or not reporting income), as well as institutional and cultural differences make the calculation of economic losses in international cases appear at times to be a daunting task. It remains the obligation of the forensic economist to be as familiar as possible with the available data sources and to utilize them with appropriate care. It is our hope that the information contained in this paper will assist the economist who is willing to undertake international case analyses.

¹⁵Using Table 1, consider an income level in the fourth quartile and a decedent in a family size of five. The first step is to deduct as joint consumption from 100% the sum of the housing components of housing (17.30%), housing services (3.26%) and furniture, home equipment and maintenance (6.15%). $100\% - 26.71\% (17.30\% + 3.26\% + 6.15\%) = 73.29\%$. Assuming a family size of five, an approximation of the personal consumption of a decedent would approximate $-14.66\% (-73.29\%/5)$. If the family size had been four, an approximation of the personal consumption of a decedent would be approximately $-18.32\% (-73.29\%/4)$.

Table 1
Consumption Data (Venezuela)

Categories	Distribution of Consumption by Category				Average
	1st Income Quartile	2nd Income Quartile	3rd Income Quartile	4th Income Quartile	
Food and Non-Alcoholic Beverages	44.18%	36.88%	27.40%	16.60%	23.90%
Alcoholic Beverages	0.97%	1.05%	0.88%	0.86%	0.90%
Tobacco	0.82%	0.79%	0.70%	0.41%	0.56%
Housing	9.35%	11.56%	12.77%	17.30%	14.89%
Housing Services	3.44%	3.68%	3.86%	3.26%	3.46%
Furniture, Home Equipment and Maintenance	3.91%	4.69%	4.83%	6.15%	5.48%
Transportation	5.52%	6.72%	8.74%	17.41%	13.12%
Communications	2.49%	3.38%	4.34%	6.18%	5.11%
Educational Services	2.83%	3.95%	4.74%	5.23%	4.76%
Clothing	4.78%	5.88%	5.52%	3.60%	4.39%
Shoes	2.67%	2.64%	2.83%	1.53%	2.06%
Personal Care	4.82%	4.62%	3.30%	2.31%	3.03%
Culture and Entertainment	4.30%	3.46%	4.46%	5.79%	5.07%
Restaurants and Hotels	6.18%	6.29%	5.58%	6.14%	6.04%
Medicine	2.28%	1.42%	2.30%	1.18%	1.55%
Medical Services	0.54%	1.01%	1.18%	1.41%	1.24%
Hospital Services	0.07%	0.43%	3.45%	0.72%	1.24%
Therapeutic Equipment and Machines	0.21%	0.20%	0.10%	0.17%	0.16%
Insurance	0.25%	0.93%	1.97%	2.90%	2.22%
Other Goods and Services	0.37%	0.64%	1.06%	0.85%	0.83%
Total	100.00%	100.00%	100.00%	100.00%	100.00%

Source: Based on Banco Central de Venezuela, II Encuesta Nacional de Presupuestos Familiares 1997/98 (Consumer Expenditure Survey).