The Thesis Committee for George Brennan McGuirk
Certifies that this is the approved version of the following thesis:

Food Expenditure Measures to Supplement Net Energy Ratios for Selected Countries 1961 - 2011

APPROVED BY
SUPERVISING COMMITTEE:

Supervisor: ______________________________
Carey W. King

Co-Supervisor: ______________________________
Michael E. Webber

Food Expenditure Measures to Supplement Net Energy Ratios for Selected Countries 1961 - 2011

by

George Brennan McGuirk, B.A.

Thesis

Presented to the Faculty of the Graduate School of

The University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

Master of Science in Energy Earth Resources

And

Master of Business Administration

The University of Texas at Austin

August 2014

Dedication

For Oscar. I am sorry for all the long days without a trip to the park you had to endure over the last three years. I wish you were still my co-pilot for my upcoming adventures in the mountains.

Acknowledgements

The author would like to acknowledge the Jackson School Energy Theme seed grant to Dr. Carey W. King for funding the research and data gathering efforts associated with this analysis.

In addition, the author would like to acknowledge the thesis supervising committee Carey W. King and Michael E. Webber. Their patience, understanding, and thoughtful insight through this process has surpassed any and all expectations.

Finally, the author would to acknowledge the support of his friends and family who tolerated the prolonged absences that resulted during the course of this project, and who were always welcoming when he resurfaced.

Abstract

Food Expenditure Measures to Supplement Net Energy Ratios for Selected Countries 1961 - 2011

George Brennan McGuirk, MSEER & MBA

The University of Texas at Austin, 2014

Supervisor: Carey W. King

Co-Supervisor: Michael E. Webber

This thesis focuses on the relationship between food expenditures and the economy. In analogous fashion to Maxwell 2013 which calculated energy expenditures as a percentage of national and global gross domestic product (GDP), this thesis examined three available food expenditure datasets to study the relationship between food expenditures as a percentage of GDP and economic growth. The analysis calculated two metrics, Primary Consumption Expenditures and Final Consumption Expenditures which were used to compare the available datasets and create a more robust hybrid dataset containing data for 178 countries with an average time span of 40 years that was used to study the relationship between global economic growth and food expenditures. Historical evidence does not suggest that food has imposed a limit on economic growth; however, recent trends over the past decade associated with biofuel production suggest the global economy has entered a new era with rapidly rising food prices and expenditures. As food resources continue to be used as industrial energy inputs, it is critical to include food expenditures in further analysis of potential impacts energy expenditures may have on economic growth.

Table of Contents

List of Tables

List of Figures

List of Equations

Chapter 1: Introduction and Background

THESIS OUTLINE

The first chapter of this thesis focuses on the role of energy resources – with a focus on food as a source of energy – in the global economy. It provides a survey of the evolution of agriculture systems throughout history and the corresponding impact of agricultural advancement has had on economic growth and general living standards for the global population. This section also explores the literature on the relationship between energy consumption and economic growth viewing agricultural production and food resources, along with other natural resources, as fundamental energy inputs to societal growth and development. In addition to providing an overview of available datasets, the second chapter defines two expenditure-to-GDP ratios for food expenses – Primary Consumption Expenditure (PCE) and Final Consumption Expenditure (FCE) – and outlines methods for calculation of these ratios for a given set of countries. The third chapter discusses the results in a series of figures comparing ratios calculated from different datasets in order to identify patterns which guide decisions about how to use available data in further analysis. The fourth chapter presents a new, more comprehensive dataset synthesized from the previously examined data which is used to expand upon the previous scholarship of King (2010 & 2014) and Maxwell (2013) examining net energy ratios (NER) and the economy. The final chapter addresses the broader implications of the findings and describes areas for future research in the area of net energy expenditures and economic growth.

OVERVIEW OF THESIS

According to Joseph Tainter (Tainter and Patzek, 2012, Tainter 1988, Tainter et al., 2003), energy plays a critical role in the growth and functioning of societies. Based upon analysis of pre-industrial societies, Tainter's theory posits that as societies grow they must inherently grow more complex. Societies organize themselves to solve social and environmental problems, and as the system grows in size it faces new problems that require it to increase in complexity in order to find solutions to those issues and maintain existing services. As the complexity of a society grows, it requires more energy and resources to maintain coordination between the different moving parts.

In this context, the work of King and Maxwell analyzed how fossil fuel and electric energy consumption interacts with the economy in an attempt to update Tainter's theory to account for modern societies powered by industrial energy technologies. As will be discussed later in this chapter, developed measures such as the Energy Intensity Ratio (EIR) quantify energy quality, while NERs show how much of national and global gross domestic product (GDP) is spent securing these energy resources. This work has yielded intriguing insights into the evolution of global energy resources suggesting that the best resources have already been exploited (Maxwell, 2013). Time series trend analysis also points towards the existence of a possible threshold value of GDP spent on energy that may retard future economic growth. In Tainter's language, the social and economic systems may be reaching a level where the energy required to maintain increased growth and complexity outweighs the benefits of that growth.

To date, this work analysis has largely ignored the inclusion of food energy – a critical energy source required for the survival of mankind – in the equation. This is, by no means, a fault of the authors. Data relating to expenditures on and consumption of food is not readily available. A search for a robust dataset including food expenditure data for a large number of countries over a 30-50 year time frame yielded no results. In fact, the failure to identify a dataset comparable to the ones used by King and Maxwell in their analysis provided the impetus for this thesis. As a complement to the work already completed and in order to capture a more complete picture of the relationship between energy and economic performance, this thesis seeks to survey the available data sources, analyze similarities and differences between trends identified in each dataset, and compile a more robust hybrid dataset. With this food expenditure dataset established, I can perform analogous global GDP Expenditure analysis of the 'energy + food' system.

As will be discussed in more detail in Chapter 2, I focus on two different accounting methods for food expenditures due to data limitations. The most intuitive measure relates to consumption expenditures on food by the end consumer. This 'output' measure provides the most accurate accounting of expenditures on food in an economy as it captures the value of all food processing and manufacturing that occurs between the farm and the table. This measure, however, is limited in scope as reliable data is only available for select countries – mostly highly developed nations – over limited time spans. A second measure of consumption accounts for the only base inputs of final consumer purchases as they come off the farm ignoring any value added throughout the food processing system. One benefit of this primary consumption accounting is that more data is available from a wider variety of countries over a longer time frame, which allows for more thorough analysis the impact of food expenditures on the global economy. I also explore the possibility of primary consumption accounting being a superior method of tallying food expenditures due to greater inherent stability and less exposure to consumer preferences compared to end consumer expenditures.

These accounting methods are used to develop consumption expenditure ratios which represent the percentage of global GDP spent on food expenditures. This makes for easy comparison to and in combination with other energy expenditure ratios in order to better understand the impact of total ‘energy + food’ expenditures on economic activity. As far as the author knows, this thesis represents the first attempt to compile food expenditure data for the 178 countries studied over the time period from 1961-2011. This large sample size and long time span are adequate to perform trend analysis and fully compliment other energy expenditure ratio datasets.

One conclusion from this data is that primary consumption accounting measures have limited usefulness, especially in developed nations. As national food systems industrialize, it is harder for the end consumer to bypass individual steps along the value adding food production chain. Additionally, analysis of food expenditure ratios alone may not provide evidence that society has reach a threshold level of GDP spent on food that will slow economic growth; however, data does show that the economic relationship between food production and consumption expenditures has fundamentally changed over the past decade. The results of using of food in the manufacturing of biofuels may foreshadow more challenges ahead as we trade food energy for industrial energy to drive the global economy.

ROLE OF AGRICULTURE IN SOCIAL AND ECONOMIC DEVELOPMENT

An Engine of Growth

The sun has been and will continue to be the biggest source of energy inputs into the ecological system on the Earth. In fact, more energy reaches the surface of the Earth in just two hours from solar radiation than is consumed globally each year (Tsao et al. 2006). For much of the history of the Earth, the main process available to capture and store this energy has been the process of photosynthesis in plants (Kummel, 2011). As this flow of energy courses through the ecosystem, autotrophs (plants and algae) capture energy from solar radiation converting it into biomass which is consumed by heterotrophs (animals) to fuel their biological energy needs (Price, 1995). Other modern industrial energy sources such as fossil fuels trace their origin back to solar energy originally captured by photosynthesis that was slowly converted from biomass to much denser energy stores through geologic processes.

For the majority of human history as with all heterotrophs, energy use and consumption was limited to the biomass individuals could procure and consume as caloric energy to fuel their somatic needs (Wrigley, 2011). All species on the Earth are subject to allometric scaling relationships which dictate their metabolic rates and caloric energy needs (West et al., 1997). For a species to survive, individuals must gather and consume more new energy resources than the energy they used to procure those resources (Moses and Brown, 2003). As humans evolved on the Earth, civilization was limited to a hunter-gather structure where the bulk of daily activity was dedicated to procuring enough food to survive, leaving little time for any other endeavors (Ingold et al., 1988). Starting approximately 10,000 years ago; however, the social structure of human society underwent a drastic change. Groups of humans in several areas across the world gradually began to abandon the foraging lifestyle, and instead began to settle in a given location and cultivate cereal grasses and domesticate animals for meat and milk (Lee & DeVore, 1968).

Agricultural systems first appeared in the Middle East and spread to Asia, Africa, and Europe (Zohari, 1986). The first staple crops were primarily wheat and barley, and all initial civilizations relied on this cereal agriculture. It took a few thousand years before humans started to cultivate other food sources such as fruit trees, vegetables, and other crops (Zohari, 1986). Around the same time, rice cultivation began in Asia (Stark, 1986). In the modern world, cereal production remains the main source of food for humans, accounting for two-thirds of protein and calorie intake – Western cultures in Europe and the Americas favor slightly lower levels of cereal consumption in exchange for more meat, sugar, and fats (Pedersen et al., 1989).

Shortly after the proliferation of cereal agriculture, the hunter-gatherer societies began to decline (Pfeiffer, 1977). More highly organized and hierarchical societies appeared, forming villages and cities, and allowing larger populations to live together as coordinated units. Compared to hunter-gatherer bands of 20 related people, early agricultural societies may have had populations ranging from 200 in villages to 10,000 in cities (Pfeiffer, 1977). Agriculture and the resulting growth of civilization meant an end to foraging – a time consuming activity which only focused on the short-term goal of procuring enough food to survive. In its place, socioeconomic classes and job specializations arose all oriented to future payoffs; "with the coming of large communities, families no longer cultivated the land for themselves and their immediate needs alone, but for strangers and for the future" (Pfeiffer 1977:21).

The rise of agriculture allowed humans to start planning for the future for the first time. As humans began to produce more energy than they needed to simply survive through agriculture and the domestication of animals, society had greater opportunities to progress. Leisure allowed mankind to begin its quest for knowledge which led to more technological advances leading to industrialization that has enabled human society to grow to where it is today (Smil, 1994). Even in the modern industrial and post-industrial age, agriculture remains the driver of economic development in late-developing countries (Johnston & Kilby, 1975, Rosegrant, 2001). The World Bank sees agricultural development policy as the most effective method to spur the growth in capital, work force, and technological development necessary to raise non-developed nations out of poverty and into the modern economy (World Bank, 2008).

A Limit to Growth

Despite the importance of agriculture to historic social development and economic growth, it also possesses the ability to be the downfall of society. As growing populations depend on an ever more productive agricultural system, any stagnation of productivity growth may lead to food shortages and starvation. This potential was most famously discussed in Malthus, 1978 when Thomas Malthus noted that the "increase of population is necessarily limited by the means of subsistence." Malthus warned of potential economic and population collapse in the British Isles due to exponential population growth outstripping linear growth in food production. Subsequent famines did kill millions, but complete collapse was averted due to advances in agricultural technologies and population emigration to distant colonies (Boserup, 1981).

More recently, so-called Malthusians predicted another population and economic collapse in the 1960's and 1970s. While outbreaks of famine and disease did occur around the world, advances in agriculture, medicine, technology, and commerce once again pushed back the limits to growth. (Bongaarts, 2009). Most notably, the Green Revolution drastically increased agricultural productivity around the world thanks to advances in hybrid seed production, fertilizer and pesticide use, irrigation development, and monoculture specialization of farming (Wilkes & Wilkes, 1972). Combined with economic globalization over the past four decades, these advances have enabled the human population to more than double since 1960 (Bongaarts, 2009).

This back and forth between predicted doom and an engineered salvation has been termed the Malthusian-Darwinian Dynamic (MDD) (Nekola et al., 2013). While Malthusian forces cause populations to increase until they reach their biological limits, Darwinian forces push back with new traits and technologies which expand the limits. While this has worked up to this point, it is "logically, physically, and biologically impossible for exponential growth to continue indefinitely within a finite world." (Nekola et al. 2013).

MACROECONOMICS VS. MACROECOLOGICAL ECONOMICS

On a broader economic scale, this Malthusian/Darwinian argument is not settled either. Neoclassical economic theory seems to uphold that economic growth is not subject to the complexity/energy relationship explained in Tainter's work. Whether one adheres to Solow's exogenous growth model or Schumpeter's endogenous growth theory, a technology innovation factor allows for the potential of continual productivity growth (Aghion et al., 1998, Howitt, 1999). If enough is invested into technological innovations, human society can engineer our way towards continued economic growth, even as population continues to grow (Howitt, 1999). Assuming that humans live on a contained planet with finite resources available for consumption, these attempts to model economic growth fail to address the issue of possible limits to growth. According to Tainter, if society continues to grow it must consume more energy to support itself; at some point there won't be enough to go around.

In the light of events leading up to and the sluggish recovery following the Great Recession of 2008, others have begun to incorporate biophysical limits on economic growth models imposed by resource constraints. Brown et al., 2011 takes a marcoecological approach to economic modeling integrating perspectives from physics and ecology to show that energy resources impose “fundamental constraints on economic growth and development.” As human population and the global economy has grown exponentially, data demonstrates a positive correlation between per capita energy use and per capita gross domestic product (GDP) measures. This scaling relationship points towards the need for consumption of large amounts of new energy resources to continue to fuel this growth in the future.

Advancing these findings, Brown et al., 2013 goes one step further claiming that our current economic paradigm is “no longer compatible with the biophysical limits of the finite Earth.” Resource scarcity is as much to blame for the failed or stagnating recover from the Great Recession as are failed fiscal and monetary policies. Analysis reveals that per capita energy use scales at approximately ¾ power of per capita GDP across and within nations. As Brown notes, this scaling is almost identical to the ¾ power scaling of metabolic rates with body mass in mammals first identified by Max Kleiber. It turns out that Kleiber’s law may shed more quantitative light on the energy requirements of maintaining social and economic systems. In this light, long-term trends showing decreasing per capita consumption off life critical resources may not be signs of increased efficiency in the global economy. Instead they may be warning signs of a growing population and economy bubble.

Until now, both sides have been correct: some populations have crashed and cultures have vanished, but our species has been able to endure thanks to behavioral changes and technological advances which have kept these events localized and not global (Nekola, 2013). These same behavioral changes and technological innovations – especially over the last century – have now created an intricately interconnected global society subject to global – not local – scale constraints. In essence, the advances that have saved us in the past may have painted us into a corner moving forward.

Just as the Green Revolution and growth of industrial agriculture has increased food supplies worldwide, it has also increased our dependence on a more limited crop selection and fossil fuel based fertilizers for food production (Wilkes & Wilkes, 1972). A shock to either system will quickly be felt in the other. Economy wide, local crises like the 2008 real estate bubble in the US or 2011 tsunami in Japan reverberated throughout all of human civilization globe resulting in global interruptions in economic activity and impacting individuals in every corner of the Earth (Nekola, 2013). As a result, the essential question has now become whether potential exists for the MDD to spur continuous innovation to push back against these global scale constraints (Heinberg, 2011). To better understand these limits to continued growth from an energy perspective, a common metric is needed for analysis.

NET ENERGY METRICS

In order to update Tainter's theory to account for impacts of industrial energy technologies on social dynamics, others have studied the economic consequence of fossil fuel energy consumption and energy expenditures through various measures. One effective method to analyze the status of the global energy environment has been to compare the output from energy resources consumed by the economy to the energy used to procure those energy resources. This type of net energy analysis facilitates the examination of direct and indirect energy requirements of different energy resources (Cleveland, 2013). Direct energy is the amount of energy consumption that results in useful work being accomplished within the economy, and indirect energy is the energy required to support the ancillary processes within the energy production services. This type of analysis is used to look at the way in which different types of energy technologies can perform "useful work" or provide an increase in relative utility to the user, within a society. Cleveland, 1992 framed a definition of a metric for net energy analysis as the Energy Return on Energy Invested (EROI) which is defined as the ratio of energy yielded from a developed energy store to the energy expended to develop that store.

To date, EROI has remained the conventional measure for net energy analysis and allows for the comparison of relative utilities of different energy resources to the end user. Examined from this angle, EROI can be used as a measure of energy quality relating the economic usefulness of different fuels and electricity. In an economic context; however, EROI fails to adequately incorporate the laws of supply and demand and the effects of price signals on fuel choices. King 2010, established EIR – defined as the relative energy intensity of a fuel to the energy intensity of the overall economy in a given country – as a reliable proxy for EROI. Additionally, EIR provides a richer interpretation of the role of energy in the economy. The EIR can be computed in two ways using the unit price of the energy type or using the annual total expenditures on that fuel type. The latter expenditure based approach allows for further analysis of global economic productivity dedicated to energy production through examination of the percentage of global GDP spent on energy (Maxwell, 2013).

Expanding off King 2010, Maxwell 2013 compiled EIR measures for 44 countries over the time period of 1978-2010. Through his analysis, Maxwell performed a trend analysis comparing the percentage of GDP spent on energy in a given year globally to the year-over-year growth rate in global GDP measures. His analysis provides quantitative evidence of potential "threshold" values for energy expenditures which have the potential to slow or reverse economic growth. As outlined earlier in this chapter, this thesis hopes to build a robust dataset of global food expenditure values. Coupled with the energy expenditure values compiled in Maxwell 2013, this will allow for analysis of global and national NER trends in the ‘energy + food’ system. This analysis will provide a more complete understanding of any potential limits to economic growth imposed by global energy resources. Additionally, this analysis may provide insight into new linkages between the energy and agricultural sectors which may result in greater economic volatility in the future.

Chapter 2: Methodology

DESCRIPTION OF DATA SOURCES

USDA - Consumption Expenditure on Food Consumed at Home

Perhaps the most detailed and exact data set available on final consumption expenditure on food and non-alcoholic beverages was compiled by Birgit Meade in the Economic Research Service at the United States Department of Agriculture (USDA). *Table 97—Percent of Household Final Consumption Expenditures Spent on Food, Alcoholic Beverages, and Tobacco that were Consumed at Home*, presents per capita expenditure values in US$ for food consumed at home for the 84 countries listed in Appendix I from 2000-2010. As mentioned previously, my analysis only examines spending on food and non-alcoholic beverages consumed at home. As shown in Figure 1, this dataset explains over 97.5% of global GDP during the 2000-2010 time frame. This data was compiled from publically available USDA data as well as private EUROMONITOR data.

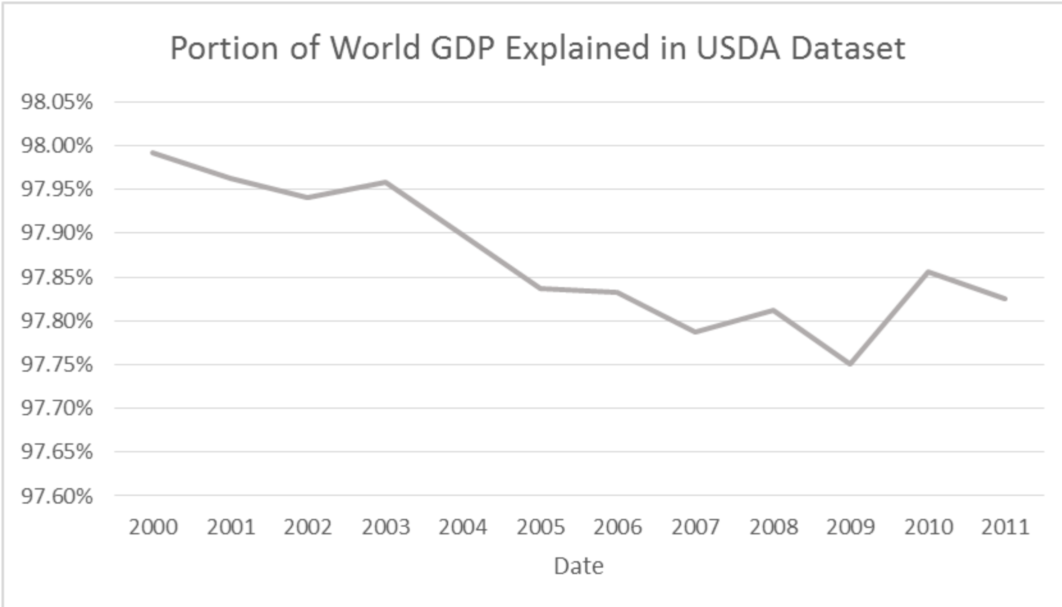

Figure 1 – Portion of World GDP Explained by USDA Dataset 2000-2010

While this data presents the most accurate accounting for actual expenditure on food consumed at home, reliance on private data sources makes it difficult to duplicate and the short time series length limited my ability to perform substantive trend analysis. Despite these limitations, I was able to use this data set to validate or refute some of the findings from my analysis of more robust data sets described below.

OECD - National Accounts Expenditure on Food and Non-Alcoholic Beverages

A second useful data set for final expenditures on food comes from the Organization for Economic Cooperation and Development (OECD). The OECD National Accounts *Table 5. Final Consumption Expenditures of Households* database had expenditure values for *Food and Non-Alcoholic Beverages*, *Restaurants and Hotels*, and *Alcoholic Beverages, Tobacco, and Narcotics*. In order to best match the data available from the USDA to enable a fairer comparison on the different data sets, I restricted my data set to the Food and Non-Alcoholic Beverages category. This data was presented in Local Currency Units (LCU's).

Using OECD National Accounts data for *Food and Non-Alcoholic Beverages* expenditures, I was able to obtain total annual expenditure values for 34 countries with time series length varying from 3 years to 53 years – with an average of 25 years - as highlighted in Appendix I. As can be seen in Figure 2, the OECD dataset explains a significantly lower percentage of global GDP when compared to the USDA dataset - approximately 10% through the 1960's and 50% from 1970-1990. Significant jumps occur when new countries join the OECD in 1970 and again in the early 1990's. Due to the exclusion of many significant emerging markets – including the BRIC Nations – the dataset only describes approximately 80% of global GDP since the 1990's; rising to a high of 83% in 2004 followed by a downward trend since 2005.

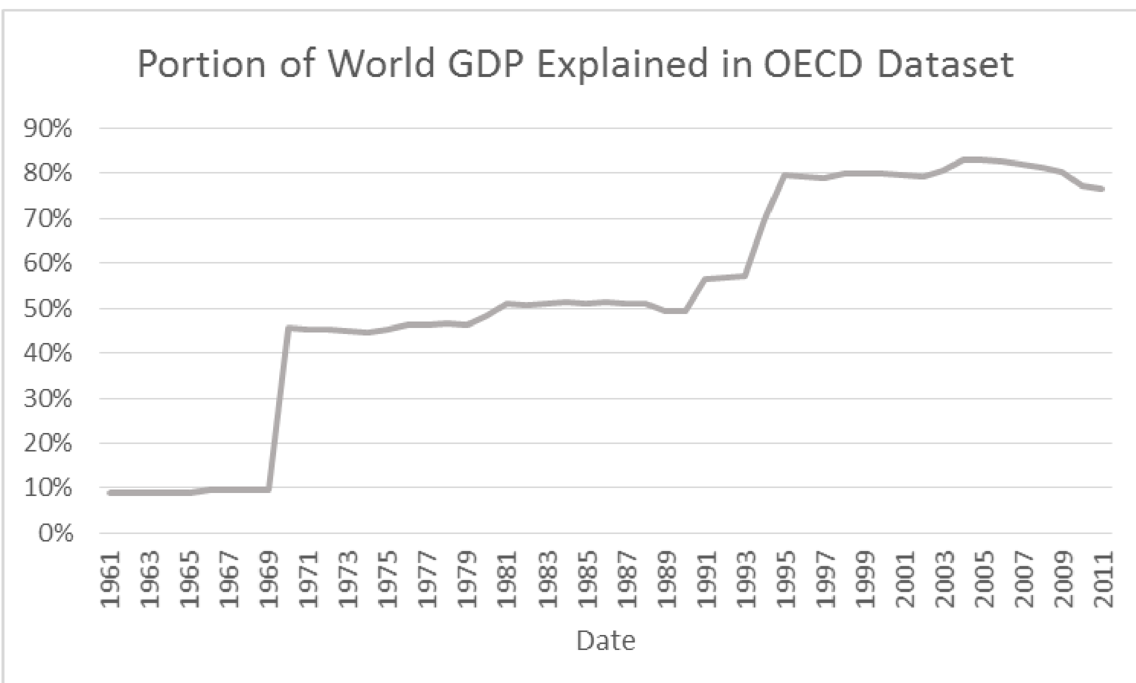

Figure 2 – Portion of World GDP Explained by OECD Dataset 1961-2011

While this data presents an accurate accounting for actual expenditure on food consumed at home for a longer average time series than the USDA data, it focuses on a smaller, less varied subset of countries. The countries highlighted in this data set are the most highly developed countries in the world. Sole reliance on this data would ignore trends present in less developed countries of the world. Despite these limitations, I used this data set as another validation tool.

FAO - Agriculture Production Values

The primary data source for this work was acquired from the Statistics Division of the United Nations Food and Agriculture Organization (FAO). Using the FAOSTAT Agricultural Production and Trade databases, I was able to obtain the value of domestic food stuffs production for a total of 178 countries listed in Appendix I. These values are reported at "farm gate", meaning it accounted for what farmers were paid for their production. The data also accounted for the value of agricultural imports and exports enabling me to derive a net value of agricultural consumption for each country. The FAO dataset was the most robust of the three available with an average time series length per country of 40 years.

As can be seen in Figure 3, the FAO dataset explains largest percentage of global GDP when compared to the other available datasets. From the 1960's through the late 1980's, the FAO dataset explains over 98% of global GDP. A significant dip occurs between 1989 and 1991 which is associated with the fall of the Soviet Union. GDP measures for many of the Soviet Republics states that declared independence begin in 1990, while the FAO database does not include data for those states until 1992. Following the fall of the Soviet Union, global GDP explained by the FAO dataset returns above 98% rising to over 99% through the 2000's.

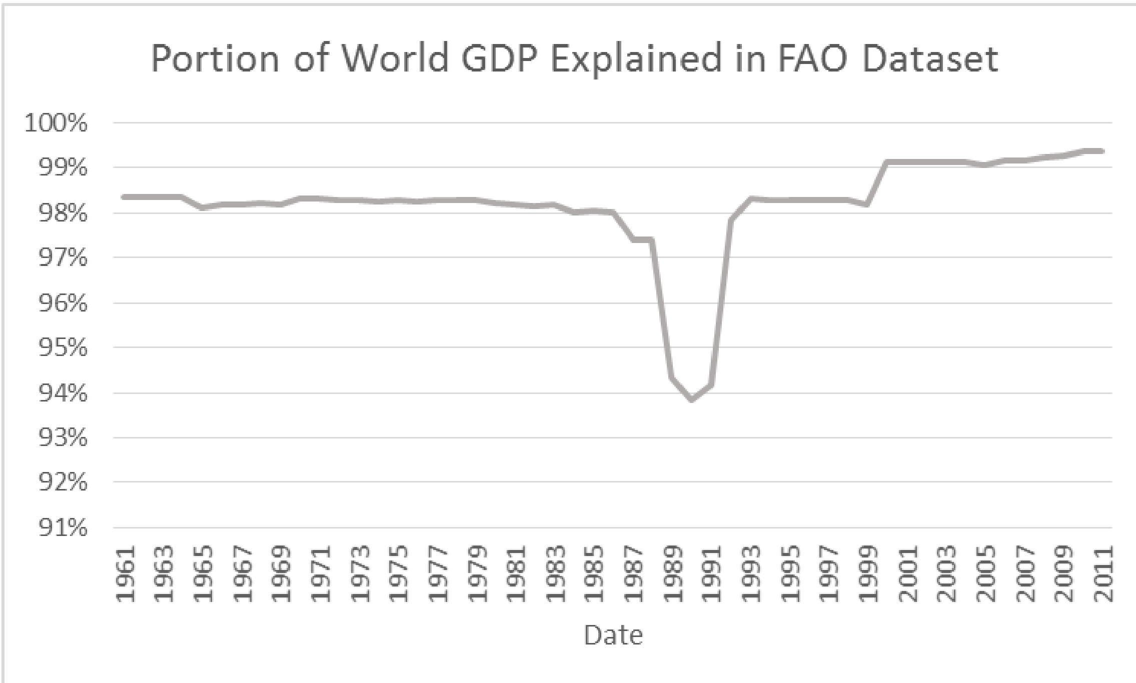

Figure 3 – Portion of World GDP Explained by FAO Dataset 1961-2011

Compared to the other available data sets, the FAO data set proved the most robust. Both the USDA and OECD data sets had more limited country lists and time series length. While I used both of these data sets to put the FAO data set in proper context, I relied solely on the FAO data set for more involved analysis relating food expenditures to social development metrics due to the i) breadth of country list, ii) length of time series data, and iii) the closer relationship between the FAO numbers and raw energy inputs in the economy as described below.

Other Background Data

For the purpose of this analysis, I had to convert the varying expenditure measures noted above into comparable units. In order to standardize different currencies and nominal expenditure values in real terms to 2005 US$, I obtained data for annual Market Foreign Exchange (FX) Rates and annual PPP Conversion Factor to Market Exchange Rate Ratios from the World Bank World Development Index (WDI) database[1]. National GDP measures were also obtained from the WDI database. Population data was obtained from the United Nations Department of Economic and Social Affairs, Population Division[2]. The nominal GDP Implicit Price Deflator pegged to 2005 US$ was obtained from the U.S. Energy Information Administration[3].

METRICS

Food Consumption – Final Consumption Expenditure Ratio

As mentioned above, the USDA and OECD offer valuable data sets tracking end-consumer expenditure on food prepared and consumed at home in various countries. This Final Consumption Expenditure (FCE) includes money spent at grocery stores and other markets to buy processed or prepared food and non-alcoholic beverages as well as raw, unprocessed produce, meat, and dairy products. Spending at restaurants and bars is excluded. When presented as a ratio of total domestic GDP, the FCE Ratio as presented in Equation 1, allows for analysis of the efficiency of national food systems at feeding its populace.

---

[1] http://databank.worldbank.org/data/views/reports/tableview.aspx#
[2] http://esa.un.org/wpp/Excel-Data/population.htm
[3] http://www.eia.gov/totalenergy/data/annual/showtext.cfm?t=ptb1501

$$FCE\ Ratio_{Country,year} = \frac{FCE_{Country,year}}{GDP_{Country,year}}$$

Equation 1 – General Form of FCE Ratio

A decreasing FCE Ratio indicates that food is becoming relatively cheaper within a country and that, holding all else constant, a larger portion of the population can afford to feed itself. Conversely, increasing FCE Ratios signal that food is becoming relatively more expensive and fewer of the populace can feed itself. Taking a global viewpoint, I also analyzed world trends by summing all available country FCE's for a given year and dividing that by the sum of GDP's for the same set of countries as shown in Equation 2 to create a weighted world average FCE Ratio.

$$FCE\ Ratio_{World,year} = \frac{\sum FCE_{Country,year}}{\sum GDP_{Country,year}}$$

Equation 2 – General Form of Weighted World Average FCE Ratio

FCE – USDA

Data from the USDA presented in *Table 97—Percent of Household Final Consumption Expenditures Spent on Food, Alcoholic Beverages, and Tobacco* that were Consumed at Home provides per capita expenditures on food and non-alcoholic beverages in nominal US Dollars (US$). Measures of FCE on food in real 2005 US$ terms were calculated utilizing nominal per capita expenditure estimates, population estimates from the U.N., and the Implicit Price Deflator as shown in Equation 3.

$$FCE_{Country,year} = \frac{Per\ Capita\ Expenditure_{Country,year} \times Population_{Country.year}}{Implicit\ Price\ Deflator_{year}}$$

Equation 3 – General Form of FCE Calculation using USDA Data

FCE – OECD

Data from the OECD National Accounts *Table 5. Final Consumption Expenditures of Households* presents aggregated national expenditures on goods and services. The *Food and Non-Alcoholic Beverages* expenditure category provides national expenditures on food and non-alcoholic beverages in nominal LCU's. Measures of FCE on food in real 2005 US$ terms were calculated utilizing nominal expenditure values in LCU's, market exchange rates from the World Bank (LCU's/US$), and the Implicit Price Deflator as shown in Equation 4:

$$FCE_{Country,year} = \frac{Per\ Capita\ Expenditure_{Country,year}}{FX\ Rate_{Country,year} \times Implicit\ Price\ Deflator_{year}}$$

Equation 4 – General Form of FCE Calculation using OECD Data

Food System Input Expenditure – Primary Consumption Expenditure Ratio

While the FCE measure a described above provides valuable insights into the how well a national food system is serving its constituents on a cost basis, it may not be well suited to help analyze the energy system of a country. As raw agriculture products move through the food system, they undergo refining, processing, and other value and energy-added processes before ending up in the end consumers shopping basket. If one simply looks at the final costs of food as a measure of the cost of energy provided by that food, there is potential for double counting as energy expended in the growth and processing phase is already accounted for in other net energy measures like EIR, EROI, and NER (King, 2010, King & Hall, 2011). As an example using Input-Output tables from the Bureau of Economic Analysis for 2012[4], Table 1 lays out values of purchased intermediate

[4] http://www.bea.gov/industry/io_annual.htm

inputs by the farm sector in the United States as a percentage of total farm sector spending on intermediate goods:

Commodity Code	Commodity Description	Percent of Total Spending
22	Utilities	1.26%
324	Petroleum and Coal Products	5.51%
325	Chemical Products	6.37%

Table 1 – Example Calculation of Double Counting Energy Inputs in Agriculture

Assuming 'Chemical Products' includes fertilizer made from petroleum derivatives, we can make a conservative estimate stating that purchases of electricity, coal, petroleum products by the farm sector was approximately 7-8% of total intermediate inputs for food production. As a result, we would expect to overestimate food expenditures at wholesale level by 7-8% if we added them to energy expenditures to get "food + energy" expenditures.

Additionally, global trends in food costs may be distorted as countries develop and consumers shift from subsistence farming and consumption of raw agricultural goods to more industrialized agricultural systems and consumption of highly processed food products. Using FCE poses problems for time series analysis as it may shift to capturing costs further and further removed from the source over time. This may also lead to higher variability in the analysis as consumers can shift their preferences and habits quickly in response to economic conditions. When times a good, people may buy more higher-cost pre-cooked meals or packaged food products, but if an economic downturn occurs, they can quickly shift to consumption of cheaper staple foods like rice and beans. As a result, FCE may fluctuate widely in response to economic conditions in response to consumer preference.

As an alternative to these measures, I propose to use a measure of Primary Consumption Expenditure (PCE). As defined below in Equation 5, PCE combines gross agricultural production values with agricultural import and export values to account for the net consumption of primary agricultural inputs into a national food system before processing and refinement occurs.

$$PCE_{Country,year} = GAP\ Value_{Country,year} + Imports_{Country,year} - Exports_{Country,year}$$

Equation 5 – General Form of PCE Calculation

Similar to the FCE Ratio, the PCE Ratio measures the efficiency of a national agriculture system by comparing the value of all raw produce that feeds into the national food system with national GDP measures. As shown below, the general and weighted-world average PCE Ratios are calculated in the same fashion as the corresponding FCE Ratios. A lower PCE Ratio means a country is producing (or trading for) all its raw food needs at a relatively cheaper cost.

$$PCE\ Ratio_{Country,year} = \frac{PCE_{Country,year}}{GDP_{Country,year}}$$

Equation 6 – General Form of PCE Ratio

$$PCE\ Ratio_{World,year} = \frac{\sum PCE_{Country,year}}{\sum GDP_{Country,year}}$$

Equation 7 – General Form of Weighted World Average PCE Ratio

By eliminating accounting for post-farm processing, the PCE measure eliminates the possibility for double counting energy costs embedded in FCE measures. Additionally, by only accounting for the value of raw agricultural consumption, the PCE measure also eliminates variability due to consumer preferences. This may make it a better metric to compare to key instability indices in an effort to understand the tipping point at which food costs become too great for a society to bear.

In the sections below, I explain how I calculated values for each component of the PCE using the FAO database.

Gross Agricultural Production Value

Using the FAOSTAT Agricultural Production database, I was able to obtain estimates for the value of agricultural production in 178 countries. As noted on the FAO website, the values reported represent gross agricultural production (GAP) values, which were compiled by multiplying gross production measures in physical weight terms by output prices per weight. Prices used represented the price at “farm gate” paid to farmers, thereby eliminating double counting of energy inputs added at different processing stages throughout the national food system.

Unfortunately, intermediate use of some products within the agricultural sector for seed and feed purposes could not be accounted for. As a result, the GAP value measure double counts some production reused as fodder. This double counting is minimal; however, as production set aside as seed is used as a no-cost input to farm operations the following year. The only double counting occurs on grain production used a food for livestock; this is unavoidable and will overstate the PCE value.

GAP values were downloaded using the *Value of Agricultural Production* database and selected Aggregated Item: *Food (PIN) + (Total)* Element Number: *2054*. These values account for all agriculture and livestock production going to into national food systems, while eliminating byproducts going to different industries such as cotton and wool.

The FAO provides estimates for the GAP value in current and constant terms expressed in US$ or International Dollars (Int$). To produce US$ figures for value of gross production, the FAO converted estimates from local currencies using official exchange rates as prevailing in the respective years. The international dollar is a hypothetical unit of currency that has the same purchasing power parity as that of the US$.

For the purpose of comparative analysis, I chose to use data presented in constant (2004-2006) US$ terms since this matches the USDA and OECD data sets converted to 2005 US$ as described above. Out of the 178 countries in the FAO database, 133 countries had GAP value data expressed in 2004-2006 US$. For these countries, no additional manipulation was needed before using these estimates to determine the first component of the PCE measure.

For the remaining 45 countries, GAP values were only available in 2004-2005 Int$ values. Prior to calculating the PCE measure, the GAP values for these countries had to be converted into 2004-2006 US$ values. Figures expressed in international dollars cannot be converted to another country's currency using current market exchange rates; instead they must be converted using the country's Purchasing Power Parity (PPP) conversion factor in conjunction with market exchange rates.

Purchasing Power Parity theory states that exchange rates are in equilibrium when domestic purchasing powers at the given rates of exchange are equivalent. A bundle of goods should cost the same in one country as in another once you take the exchange rate into account; however, foreign exchange rates often do not properly account for differing price levels between countries. The PPP conversion factor corrects these errors and represents the number of units of a country's currency required to buy the same amount of goods and services in the domestic market as one US$ would buy in the United States. The ratio of PPP conversion factor to market exchange rate (PPP-Exchange Ratio) is the result obtained by dividing the PPP conversion factor by the market exchange rate. The ratio makes it possible to compare the cost of a bundle of goods across countries. It tells how many dollars are needed to buy a dollar's worth of goods in the country as compared to the United States.

Stated in terms of units, the PPP-Exchange Ratio can be more easily understood as described in the following equations:

$$PPP\ Conversion\ Factor = \frac{LCU\$}{Int\$}$$

$$Market\ Exchange\ Rate = \frac{LCU\$}{US\$}$$

$$\therefore PPP - Exchange\ Ratio = \frac{LCU\$/_{Int\$}}{LCU\$/_{US\$}} = \frac{LCU\$}{Int\$} \times \frac{US\$}{LCU\$} = \frac{US\$}{Int\$}$$

Equation 7 – PPP-Exchange Ratio Unit Cancellation

Fortunately, the World Bank WDI database provided annual PPP-Exchange Ratio data for the 45 countries in question. Since the FAO data is presented as 2004-2006 Int\$, I chose to take the average of the annual PPP-Exchange Ratios for each country for 2004, 2005, and 2006 to create a 2004-2006 PPP-Exchange Ratio for each country. Simply multiplying the 2004-2006 Int\$ estimates by this conversion factor yielded GAP value estimates in 2004-2006 US\$ as shown below:

$$GAP\ Value_{04-06Int\$} \times PPP\ Exchange\ Ratio_{04-06} = Int\$ \times \frac{US\$}{Int\$} = GAP\ Value_{04-06US\$}$$

Equation 8 – GAP Value Conversion from Int$ to US$

Import and Export Values

Import & Export values are also available on the FAOSTAT Agricultural Trade database. Trade values were available for all 178 countries in the data set and were reported in US$ meaning they were current or nominal values. For both import and export values, I used the Aggregated Item: *Food and Animals + (Total)* Element Code: *1883*, which included all food inputs and meat types. It excluded values of other goods such as skins, fur, textiles, and alcohol associated with agricultural systems that are not food items. In order to convert nominal US$ values into values compatible with the GAP Value calculations in 2004-2006US$, I simply divided the Import and Export values by the Implicit Price Deflator obtained by the EIA as follows:

$$Imports_{04-06US\$} = \frac{Imports_{Nominal\ US\$,year}}{Implicit\ Price\ Deflator_{year}}$$

$$Exports_{04-06US\$} = \frac{Exports_{Nominal\ US\$,year}}{Implicit\ Price\ Deflator_{year}}$$

Equation 9 – Nominal Import and Export Value Conversion

The EIA price deflator is pegged to 2005 US$, so there may be slight variations between values in constant 2004-2006 US$ compared to 2005 US$; however, these errors will be minimal and will not affect my analysis. With all the components of the PCE measure in compatible US$ terms, the PCE measure is obtained by combining GAP value estimates with annual trade flows as shown in Equation 5 above.

In later sections, I also calculate the PCE Ratio at per capita and quintile levels to explore how key instability measures do or do not correlate better to these metrics as an explanation for historical societal upheavals witnessed in decades past.

Data Limitations and Assumptions

There are several limitations in the data related to the method in which data are collected and the transparency of background data available for manipulation. First, both the USDA and OECD dataset simply report final expenditure values. There is no background data available to better understand the components of each final expenditure value. This information would be valuable to analyze the relationships between different components of the FCE value and PCE values.

Additionally, there are several limitations to the FAO data with how price and expenditure data are collected. Specifically, the FAO relies on national governments to report their production values and prices; however, local food policies often distort prices compared to global market prices. Also, in less developed nations, most food is produced and consumed from subsistence farming and bartering. It is notoriously hard to accurately estimate the values with such activities. These limitations are discussed in more detail in Chapter 3.

Chapter 3: Results and Interpretation

The results and data presented in this section correspond to stepwise analysis conducted as follows. First, I analyze time series trends for FCE and PCE Ratios exhibited by each dataset individually, and discuss sources of potential distortion in the PCE Ratio measures. For each measure, there will be a chart which will highlight the weighted world average, the highest and lowest extreme values, and various other findings of note. A second chart will show the growth rate for the weighted world average of each dataset in an attempt to analyze the volatility of the different expenditure measures. Corresponding data tables with annual country values can be found in Appendix II. Second, I compare FCE and PCE Ratio measures to validate the significance of the PCE Ratio. I analyze divergences between the weighted world average for each measure, as well as PCE to FCE multiples for different regions of the world.

Both FCE and PCE ratios take the following subscript notation procedures for reference purposes: the first term will be FCE or PCE depending on the measure being discussed; the source will be noted as the first subscript element (USDA, OECD, or FAO); country identification will follow using conventional country code abbreviations (the "World" tag will correspond to the weighted world average); finally, the year will be the last subscript element if it is necessary to identify for purposes of discussion. For example, the weighted world average FCE value calculated from the USDA dataset for 2000 would be referenced as: FCE $\text{Ratio}_{\text{USDA,World,2000}}$.

Time Series Trends of All Data Sets

The first step in my analysis entailed calculating FCE and PCE Ratios using the available datasets and analyzing noticeable trends in the time series data. Analysis focused on global trends in the weighted world average measures, as well as, localized trends in selected countries as described below.

FCE Ratio$_{USDA}$ - Consumption Expenditure on Food Consumed at Home

As shown in Figure 4, the weighted world average FCE Ratio for the USDA dataset decreased from 2000 until 2002 before starting to steadily rise for the remainder of the decade. The FCE Ratio$_{USDA,World}$ bottomed out at 7.25% in 2002 before rebounding the rest of the decade and ending at a peak of 9.42% in 2010. This trend is consistent with recent price and spending escalations noted in the literature (Mitchell, 2008). All annual country FCE Ratio$_{USDA}$ values are presented in Table 4 in Appendix II.

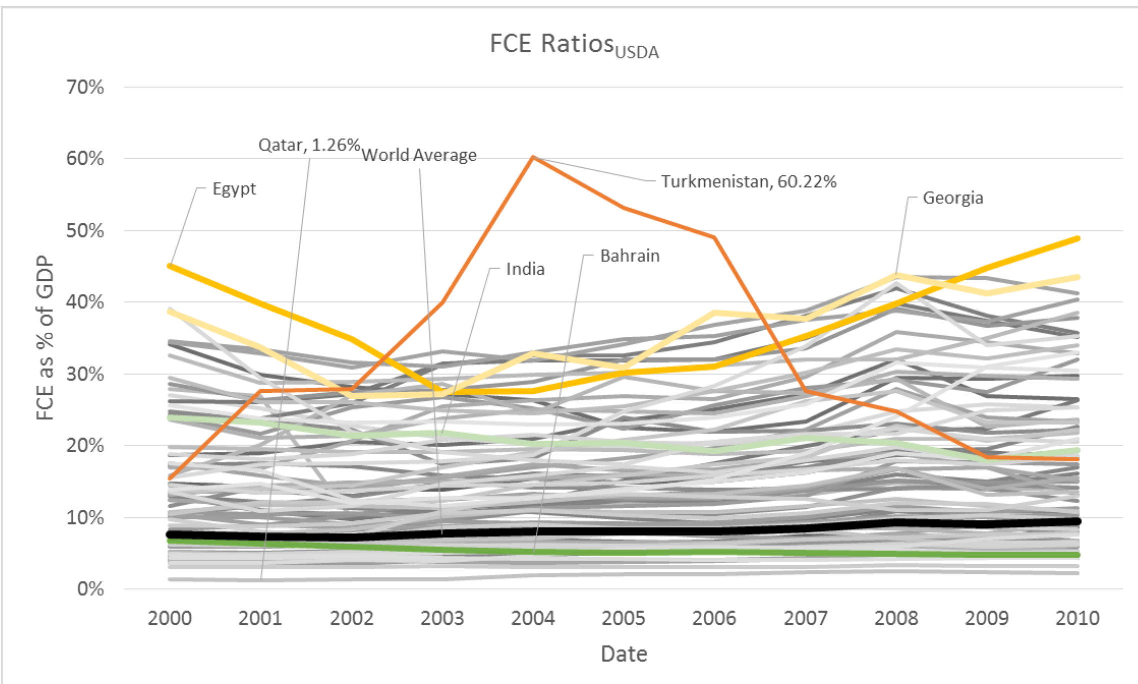

Figure 4 – USDA FCE Ratios for Selected Countries 2000-2010

The majority of national trends follow a similar trajectory showing lower, stable to slightly decreasing, FCE Ratios in the early 2000's that steadily rise after 2002 to peak values by 2010. The lowest FCE Ratio belongs to Qatar (1.26% in 2001) which has the lowest FCE Ratio of all nations over the entire dataset due to relatively high GDP associated with oil exports. The highest FCE Ratio occurred in 2004 when Turkmenistan hit a peak of 60.22%. The final FCE Ratio distribution is more dispersed and more heavily skewed upward in 2010 compared to 2000. These trends and driven by steadily increasing per capita food expenditures coupled with slower GDP growth rates over the same period. There are a few notable exceptions as noted below:

- Turkmenistan stands out and as it follows a reverse trend starting with relatively low FCE Ratios in the early 2000's before peaking in 2004 and decreasing to previous levels by 2010 – this trend was driven by a surge in food expenditures from 2003-2006 due to limited irrigation water supplies subsequently alleviated by the construction of the Dostluk dam (FAO 2012);
- Bahrain bucks the global trend and exhibits a decreasing FCE Ratio driven by decreasing food expenditures;
- India also has a decreasing FCE Ratio; however, this is a result of strong GDP growth which outpaces increasing food expenditures;
- Georgia and Egypt see the strongest U-shaped trends and both begin and end with the highest FCE Ratios of all countries in the dataset – Egypt's FCE Ratio is driven by falling, then rising food expenditures, while Georgia's is driven by steadily increasing food expenditures coupled with strong GDP growth followed by stagnation.

The year-over-year growth rate for the FCE $Ratio_{USDA,World}$ is shown in Figure 5. While the world average appears relatively stable with a range of 2.17% from 7.25% to 9.42%, the growth rate is much more volatile. With a range of 13.11% from -4.12% to 8.99% and a variance of 0.00177, the FCE $Ratio_{USDA,World}$ growth rate responds strongly to global economic conditions. A strong negative growth rate in 2001 (-4.12%) shows that global FCE measures contracted more than global GDP measures. As the economy recovered, the growth rate surged above 6% from 2002-2003 and again above 8% from 2006-2008 as global FCE expenditure growth outpaced GDP growth.

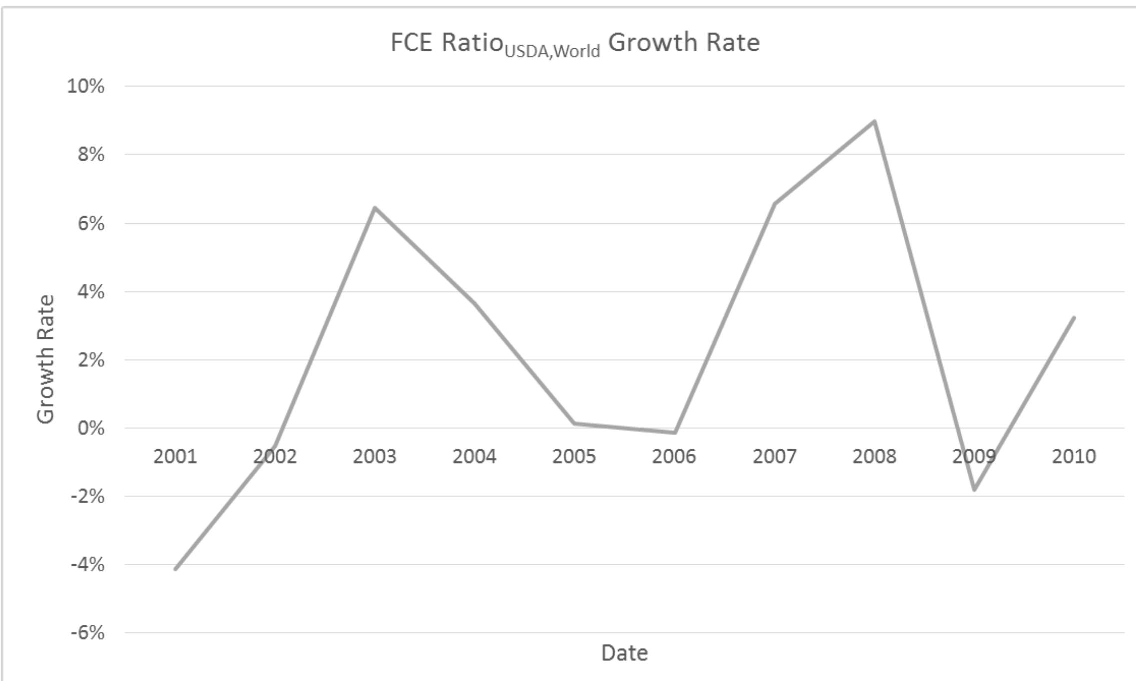

Figure 5 – USDA Weighted World Average FCE Ratio Growth Rate 2001-2010

FCE Ratio$_{OECD}$ – National Accounts Expenditure on Food and Non-Alcoholic Beverages

As shown in Figure 6, the weighted world average FCE Ratio for the OECD dataset shows a general decreasing trend from 1961 until the early 2000's before beginning to follow a growth trajectory mirroring that shown in the USDA dataset. The FCE Ratio$_{OECD,World}$ peaked 1963 at 7.90% before bottoming out at 5.61% in 2001 before rebounding the rest of the decade and ending close to its peak at 7.68% in 2011. Big increases in the FCE Ratio$_{OECD,World}$ are noted from 1969-1970 and 1993-1995. These increases are the result of new, less developed nations joining the OECD during those time periods; less developed nations generally a greater percentage of national income on food compared to more developed nations (Mitchell, 2008). These jumps represent short-term adjustments due to expansion of the OECD dataset, and do not signify meaningful changes in time series trend analysis. All annual country FCE Ratio$_{OECD}$ values are presented in Table 5 in Appendix II.

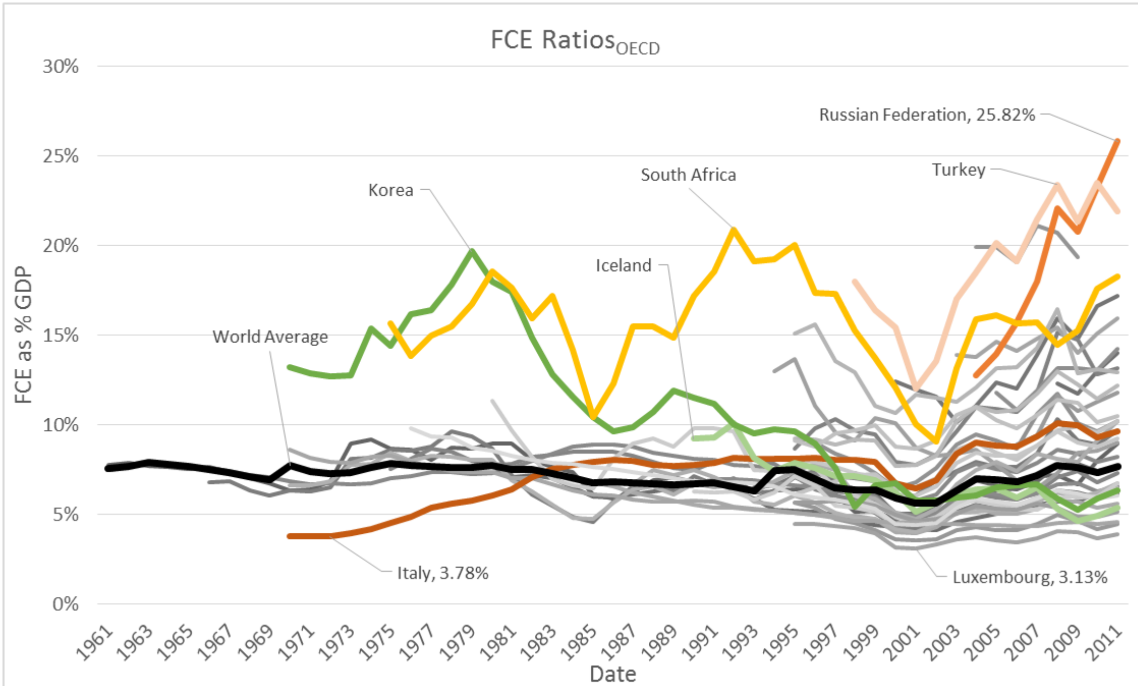

Figure 6 – OECD FCE Ratios for Selected Countries 1961-2011

Similar to the USDA dataset, the majority of national trends follow a similar trajectory as the weighted world average, showing a general decreasing trend up until the early 2000's before expenditures increase and become more widely distributed and generally reaching peak values in 2011. Due to the longer time series, national FCE values vary significantly more than in the USDA dataset. The lowest FCE Ratio belongs to Luxembourg (3.13% in 2001) which had the lowest FCE Ratios of all countries during the 2000's. The highest FCE Ratios belong to the Russian Federation which reached 25.82% in 2011 and Turkey which reached 23.49% in 2010. These trends and driven by higher GDP growth relative to food expenditures up until the 2000's. Trends post 2000 are driven by the same steadily increasing food expenditures coupled with slower GDP growth rates that drive the trends seen in the USDA data. There are a few noteworthy exceptions as discussed below:

- Italy started with the next-to-lowest FCE Ratio of 3.78% in 1972, but experienced a steadily increasing, rather than decreasing, FCE Ratio from the 1970s until the beginning of the 2000's before beginning to mimic global trends for the remainder of the 2000's;
- The Russian Federation and Turkey exhibit the significantly higher FCE Ratio growth rates compared to other countries since 2000 – Russian growth is driven mostly by exploding food expenditures while Turkey's growth is due more to slower GDP growth relative to food expenditures;
- South Africa has had a consistently elevated FCE Ratio that has experienced two periods of significant reduction from 1985-1986 and 2000-2003; these reductions have occurred with only moderate GDP growth due to periods of significant food expenditure reductions.
- South Korea has experienced the most significant FCE Ratio reductions sustained through 2011 since peaking in 1979 – steadily increasing food prices and expenditures have been overpowered by more significant GDP growth;
- Iceland has also experienced sustained FCE Ratio reductions from 1990 through 2010 due to a general trend of stable to falling food expenditures coupled with GDP growth.

The year-over-year growth rate for the FCE $\text{Ratio}_{\text{OECD,World}}$ is shown in Figure 7. Similar to the USDA dataset, the world average FCE Ratio appears relatively stable with a range of 2.28% from 5.61% to 7.90%, the growth rate is much more volatile. As mentioned previously, big jumps occur between 1969-1970 and 1993-1995 in response to addition of data from less developed countries. Excluding those anomalous years, the growth rate for the FCE $\text{Ratio}_{\text{OECD,World}}$ has a range of 19.09% from -7.03% to 12.06% and a variance of

0.00149. The FCE $Ratio_{OECD,World}$ appears less strongly tied to economic conditions than the FCE $Ratio_{USDA,World}$ – it does not rebound significantly during the recoveries from global recessions 1974-1975, 1980-1983, and 1998. During the 2000's, however, the FCE $Ratio_{OECD,World}$ appears to exhibit stronger boom and bust responses similar to the volatility seen in the USDA measure.

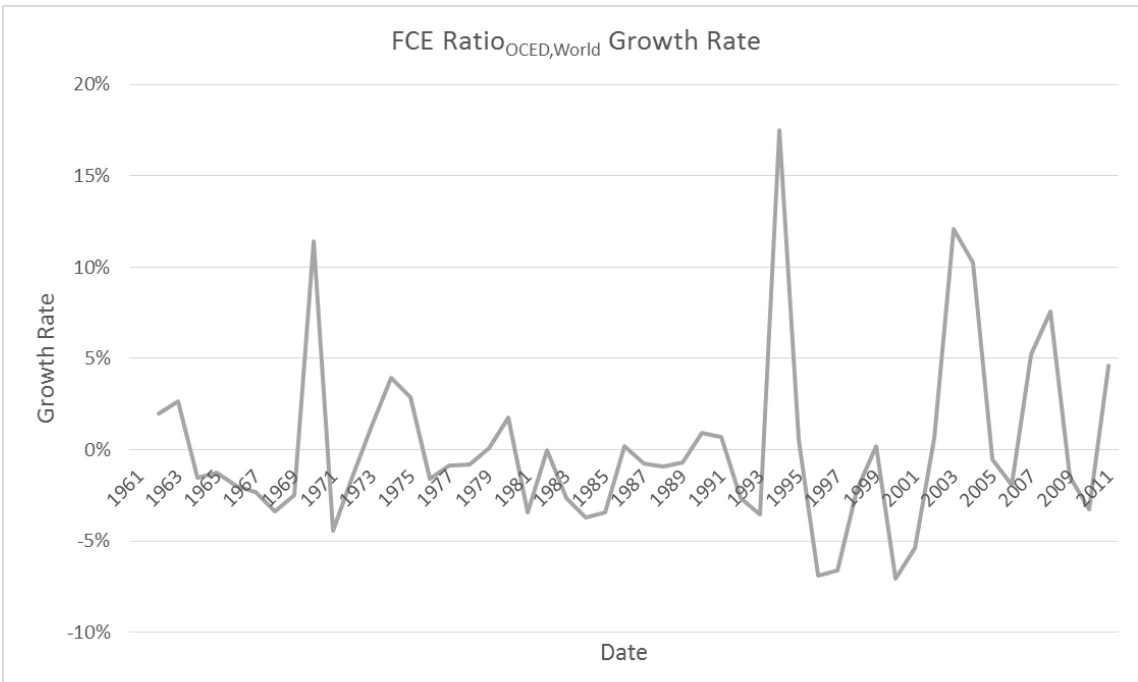

Figure 7 – OECD Weighted World Average FCE Ratio Growth Rate 1962-2011

PCE $Ratio_{FAO}$ – Agriculture Production Values

A quick glance at Figure 8 reveals troubling details about the PCE data presented by the FAO. In particular, Burundi, China, and Liberia all exhibit PCE Ratio values that exceed 100%. This means that the value of raw agricultural goods entering each country's food system exceeded the total GDP of that nation. In theory, such a situation is conceivable if a country is going into debt to feed itself. This might occur in a rare, catastrophic situation such as a nationwide drought or a blight induced crop failure, PCE Ratios over 100% could not be sustained for more than a year or two at a time. According to the FAO data analyzed, Burundi's PCE Ratio never dips below 100% and is as high as 232% in 1961. Additionally, China and Liberia suffer almost a decade each with PCE Ratio values over 100%.

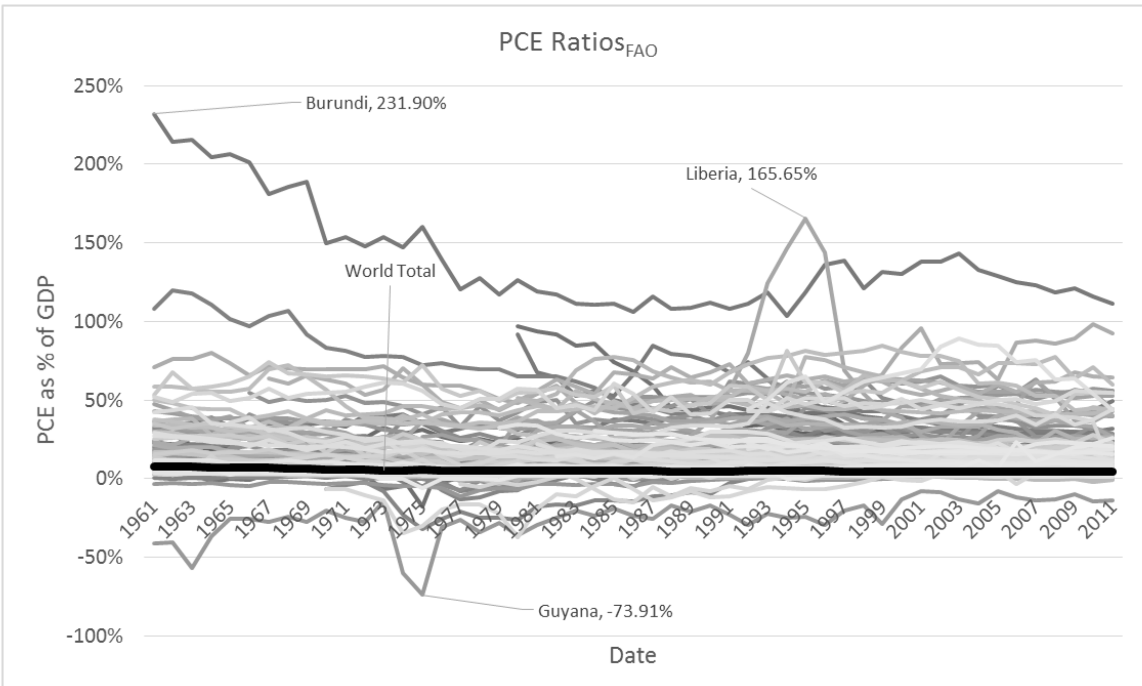

Figure 8 – FAO PCE Ratios for Selected Countries 1961-2011

More troubling is a larger number of negative PCE Ratio values exhibited by several countries. This indicates that some lucky countries are basically getting paid to eat. Of note, Guyana's PCE Ratio bottoms out at -73.91% in 1975 and never registers as positive. Additionally, there is a surge of PCE Ratio values going negative throughout the 1970's and 1980's. Referring back to Equation 5, the PCE value for a country is equal to Agricultural Production + Food Imports – Food Exports. Given that all countries in the

FAO dataset have positive GAP values, the only way a country can have a negative PCE Ratio is if it exports more food product value than its agricultural system produces and consumes within a year. Again, this can conceivably happen if a country has large stockpiles from previous years that it exports all at once. Much like PCE Ratios over 100%, a negative value could only be short lived as stockpiles would quickly be depleted. This is more unlikely though since most of the countries with negative PCE Ratio values are underdeveloped countries where storage of agricultural goods is notoriously difficult leading to excessive waste (Parfitt et al., 2010). All raw annual country PCE $\text{Ratio}_{\text{FAO}}$ values including all error values are presented in Table 6 in Appendix II.

When initially faced with these anomalous values, several potential sources of error came to mind. The first quick check was whether the FAO import and export data included non-food items. For example, if plant derived bio-fuels were included in export values, big bio-fuel export values could potentially dwarf agricultural production values leading to a negative PCE Ratio. This, however, would only be theoretically possible in the past decade or two as bio-fuel production has grown. Closer examination of the components counted in the import and export data verified that non-food item values were not included.

A similar consideration was examined next. While only food items were included in the FAO import and export values, it's important to consider the accounting for value-added processing that might be associated with imported and exported goods. Are imports and exports accounted for in raw agricultural input terms or in finished product terms? For example, if a country only grew cocoa beans and exported expensive refined chocolate bars, the value of exports would surpass its agricultural production assuming the FAO valued the exports as chocolate bars and not the cocoa beans that went into them.

Component food category lists for FAO GAP and Import and Export values match and do not include processed/value-added categories in the Import and Export data.

A more plausible explanation presents itself when one considers what prices the FAO uses in the calculations for GAP, Import, and Export values. As stated on earlier in this report, the FAO uses prices “at farm-gate” when valuing agricultural production. This means the GAP value is calculated using national prices. If import and export values are calculated using international market prices these would most likely differ significantly from the local prices used to calculate production values, especially for heavily commoditized agricultural products. After reviewing the FAO Food Balance Sheet Handbook[5], information explicitly citing what prices are used to calculate import and export values could not be found. Attempts to contact the FAO for clarification on their calculation methods have not yielded conclusive information. It is noted, however, that significant trade may go unrecorded across national boundaries, and that exports have the greatest potential to be under reported since custom administrations focus the majority of their attention on imports since they are subject to taxes and quantitative controls.

A further literature review revealed a few other potential sources of error in the FAO datasets. As noted in the FAO Food Balance Sheet Handbook, the sources and accuracy of basic information used to compile the FAO data present come conceptual problems. First, production and manufacturing survey may not be conducted regularly in certain countries, especially less developed nations. Even if the surveys are conducted regularly, they may only cover a certain portion agricultural products limited to major commercialized food crops. This makes determining appropriate prices for national

[5] ftp://ftp.fao.org/docrep/fao/011/x9892e/x9892e00.pdf

agriculture production value calculations very difficult, especially since survey data may not be granular enough to pick up regional price differences within a country.

Additionally, agricultural production may be under underestimated in a number of countries while it's overestimated in others for several reasons. Specifically, agricultural pricing policies enacted by developing countries are often mirror images of those employed in developed nations (Bale & Lutz, 1980). Heavy taxation of the agricultural sector in developing countries distorts reported production downward, while heavy subsidies and price protection may inflate production reports in developed nations (Anderson & Swinnen, 2008) & (Anderson & Masters, 2009).

Regardless of policy choices, the poorest countries also face problems associated with estimating production from subsistence farming. Especially in poor countries, there is a large amount of subsistence farming, and as pointed out by Mosher (2008) and Wharton (2008), subsistence farmers are defined as those that sell anywhere between 0-50% of their farm production on the open market. Given that farmers can progress or regress along this scale from year to year, it is immensely difficult to accurately extrapolate values of food production for household consumption. After review of the FAO Food Balance Sheet Handbook, I could not determine if subsistence farming was included in the values reported by the FAO. As stated previously, the FAO relied on each country to report their own estimates individually, and I did not find a definition from the FAO that excluded estimates for subsistence values. While subsistence farming values are not a significant source of error in developed nations, given the relatively high FAO PCE value estimates for the least developed (the most subsistence based) countries, I assume subsistence production value estimates are included for some countries. Unfortunately I cannot identify which countries include subsistence values and which ones do not.

As noted above, a substantial portion of the negative PCE Ratio values occur in the 1970's and 1980's. As discussed in Johnson (1975), this time period saw many national governments institute agricultural commodity pricing policies in order to try to control price volatility. This included both trade tariffs and direct price controls. These policies distort prices across national boundaries, making it very hard to arrive at fair market values for production and trade, especially when the same governments implementing these pricing policies are the ones reporting to the FAO. As a result, production and import values may be under reported due to artificially low domestic prices, while exports are relatively overvalued when sold abroad.

PCE Ratio$_{\text{FAO-Clean}}$ – Filtered Agriculture Production Values

Even if efforts to understand the reporting methods for the FAO PCE dataset were more revealing, many of the issues discussed above would still exist and correcting for their effects would prove too onerous a task for such a research project. As a result, I decided to continue on with my analysis from here on out using a filtered version of the FAO PCE data, referred to as PCE Ratio$_{\text{FAO-Clean}}$. I identified two potential methods for filtering the data, 1) to remove all data from any country which exhibited an anomalous value, or 2) simply eliminate only the anomalous values while retaining data that yielded reasonable results. After consideration, I decided to utilize the latter filter due to the transitory nature of the distortionary factors discussed above. By allowing for filtering of individual data points as opposed to whole country datasets, PCE Ratio$_{\text{FAO-Clean}}$ is a richer dataset which theoretically captures more reasonable estimates after the distortionary factors have been changed or eliminated.

After deciding on a filter method, I faced the question of what filter to use – what is a reasonable PCE Ratio value? Returning to the literature, there are numerous references to poor countries spending the majority of national GDP on food. The highest estimates of spending on food were noted in FAO 2011 at levels exceeding 70% of GDP. To account for the diminished importance of agriculture in the global economy in recent decades, I decided to inflate the acceptable maximum PCE Ratio value to 80% in order to accommodate higher ratios in historical data. On the low end, many of the most developed nations, including the United States, have an agricultural sector that accounts for only about 1% of national GDP[6]. As a result, I settled on a final filtering range for acceptable PCE Ratio values of 1%-80% of national GDP. As part of the filtering, I also eliminated stranded PCE Ratio values – individual, valid data points identified within a band of filtered values – in an effort to filter for consistency as well. If policy interference or poor data gathering methods resulted in consistent, invalid measurements surrounding a seemingly valid measurement, it stands to reason that those same background conditions still held and the seemingly valid measurement simply beat the filter by happenstance. To summarize, the filter criteria included the following restrictions:

- Elimination of PCE Ratio values < 1% of national GDP,
- Elimination of PCE Ratio values > 80% of national GDP,
- Elimination of resulting "stranded" valid PCE values,
- Any year a PCE value was eliminated for a given country, that country's GDP was not included in the global GDP measure for that year.

[6] http://www.bea.gov/industry/gdpbyind_data.htm

Out of 7,007 initial data points, the 1%-80% and stranded value filter eliminated 462 data points, or just 6.59% of the available data. Thus, filtering had limited effects on the usefulness of the PCE $Ratio_{FAO\text{-}Clean}$ dataset. All annual country PCE $Ratio_{FAO\text{-}Clean}$ values are presented in Table 7 in Appendix II with removed values highlighted.

It should be noted that all of Guyana's data points were caught by the filter. Guatemala has a stretch of valid PCE Ratio measurements from 2001-2008; however, every other value from 1961 on was filtered out. Due to the extreme consistency of invalid measurements for Guatemala, I eliminated the eight valid data points as well. Similarly, while data was only available for Belgium from 2000-2011, PCE Ratio measurements from 2005-2011 (7 of 12 measurements) were invalid. I eliminated the remaining valid Belgium measurements following similar logic as I did for Guatemala.

As shown in Figure 9 below, the weighted world average PCE Ratio for the FAO dataset follows a steady decreasing trend from 1961 to the 2000's similar to the FCE $Ratio_{OECD,World}$. During the 2000's, the PCE $Ratio_{FAO\text{-}Clean,World}$ breaks from the FCE $Ratio_{OECD,World}$ and continues to decline the rest of the decade. The PCE $Ratio_{FAO\text{-}Clean,World}$ peaked 1961 at 7.12% and bottoms out at 4.32% in 2007 and levels out through 2011. A period of growth in the PCE $Ratio_{FAO,World}$ occurs between 1971 and 1975; this is mostly associated with data for China entering the dataset over this time period skewing the weighted world average upward due to its high national PCE Ratio. This general decreasing trend in the PCE $Ratio_{FAO\text{-}Clean,World}$ is the result of many of the agricultural advances coming out of the Green Revolution which resulted in cheaper agricultural production methods (Evenson, 2003). Steeper declines in the PCE $Ratio_{FAO\text{-}Clean,World}$ are concentrated in the first half of the dataset, while values throughout the 2000's have remained stable; this may suggest that the production efficiency gains resulting from the Green Revolution have been fully realized. This idea will be discussed more later in Section 4. All annual country PCE $Ratio_{FAO\text{-}Clean}$ values are presented in Table 5 in Appendix II.

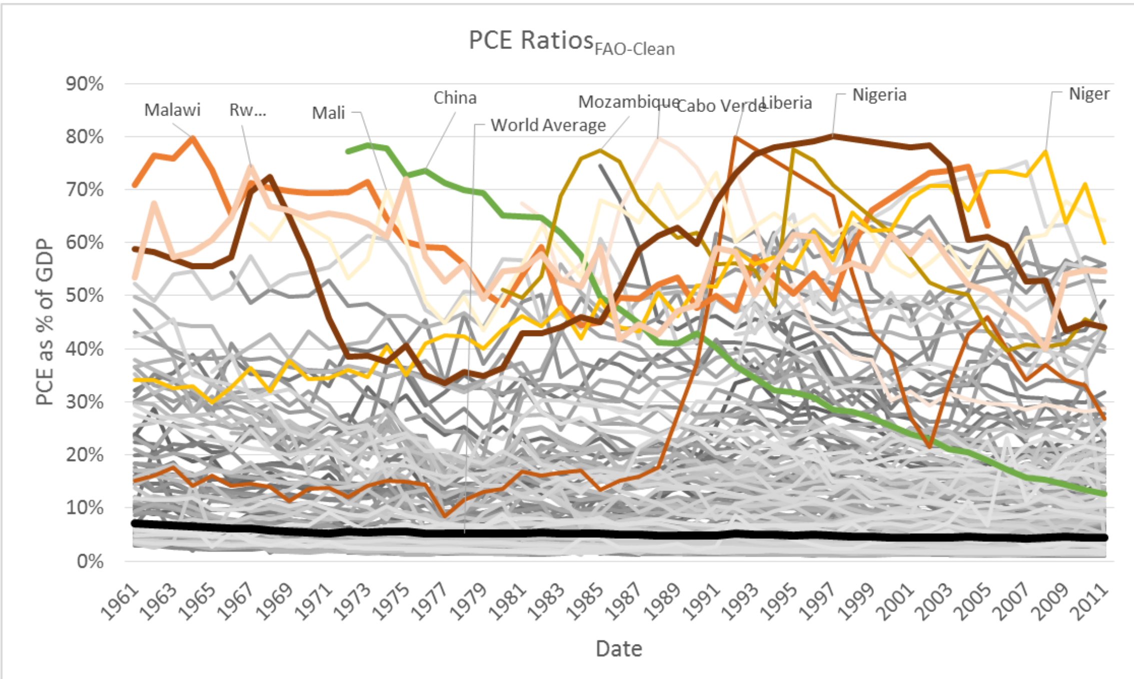

Figure 9 – FAO-Clean PCE Ratios for Selected Countries 1961-2011

Even after filtering, the PCE $Ratio_{FAO\text{-}Clean}$ dataset values still much more distributed than either the USDA or OECD datasets. This is to be expected as the FAO dataset includes many of the poorer countries not included in the other datasets. Agriculture makes up a much larger portion of the GDP in these countries, but due to their small size, their PCE Ratios are outweighed by more developed nations with much lower PCE Ratios and much larger GDPs. The lowest PCE Ratio values belong to Scandinavian countries like Denmark and the Netherlands which have had PCE ratios as low as 1-2% ever since the 1960's. Recently Ireland has also experienced very low PCE Ratios of approximately

1% as its economy has expanded over the 2000's. The highest PCE Ratios belong to the predominantly African nations as highlighted in Figure 9. Many of these nations have PCE Ratios over 50% for the entirety of the dataset time span with peaks close to 80%. These PCE Ratio trend lines are also more variable than the FCE Ratio prepared from the other datasets. This may be the result interference from food policies discussed above, or may simply reflect the variable nature of agriculture coupled with its importance in the economies of these countries. While it's harder to pick out trends in this noisier dataset, there are a few notable observations noted below:

- After filtering high values in the 1960's, China enters the dataset in 1972 with a PCE Ratio above 75%, but then experiences the fastest, most sustained decline of any country in the dataset before ending with a PCE Ratio of 12.71% in 2011; this decline can be attributed to China's move away from a predominantly agrarian economy and rapid industrialization over the past 40 years (Macours & Swinnen, 2002);
- The United States has experienced one of the smoothest and most continuous declines in PCE Ratio of any country in the FAO dataset; starting at just over 3.5% in 1961, the PCE $\text{Ratio}_{\text{FAO-Clean,US,2011}}$ was the lowest recorded for the US at 1.4%;
- Liberia started out as one of the few African nations with a relatively low PCE Ratio of 15% before experiencing a huge spike through most of the 1990's; Liberia was experiencing a civil war from 1989-1996 (Stewart, 2006) which was the cause of these inflated PCE Ratio numbers; Liberia continues to struggle through present day having a PCE Ratio over 25%;
- Niger's PCE Ratio has also followed an interesting, ever-increasing trajectory rising from 34% in 1961 to 77% in 2008; unfortunately, Niger's economy is largely

driven by subsistence farming and mineral export – notably uranium; as global appetite for uranium has decreased, little else has been able to pick up the slack as Niger's GDP has fallen relative to the food needs of its citizens;

- Nigeria has similarly struggled with rising PCE Ratio values since the 1970's; after peaking in 1968, Nigeria experienced drastic improvements in its PCE Ratio of the 1970's until it started a steady climb through the 1980s and 1990's; during this time, Nigeria experienced a very turbulent political environment consisting of a failed attempt at democracy, repeated coups, and the reign of a military junta which resulted in a stagnating economy during this time.

The year-over-year growth rate for the weighted world average PCE $\text{Ratio}_{\text{FAO-Clean}}$ is shown in Figure 10. Compared to the USDA and OECD datasets, the PCE $\text{Ratio}_{\text{FAO-Clean,World}}$ appears the most variable with a range of 2.80% from 7.12% to 4.32%. The growth rate for PCE $\text{Ratio}_{\text{FAO-Clean,World}}$, however, is much more stable. As mentioned previously, the sustained increase from 1971-1975 is largely in response to addition of data from China into the dataset. Excluding those anomalous years, the growth rate for the PCE $\text{Ratio}_{\text{FAO-Clean,World}}$ has a range of 13.13% from -6.76% to 6.36% and a variance of 0.000706. The PCE $\text{Ratio}_{\text{FAO-Clean,World}}$ appears less strongly tied to economic conditions than either of the PCE Ratios; especially in the 1960's as efficiency gains from the Green Revolution continue to push agriculture costs down improving PCE Ratios worldwide. Similarly, the PCE $\text{Ratio}_{\text{FAO-Clean,World}}$ does not rebound as significantly as FCE Ratio measures during the recoveries from global recessions 1974-1975, 1980-1983, and 1998. As noted earlier, the PCE $\text{Ratio}_{\text{FAO-Clean,World}}$ remains fairly stable during the 2000's with low growth rates between -2% and 2% and does not experience big swings associated with more recent recessions.

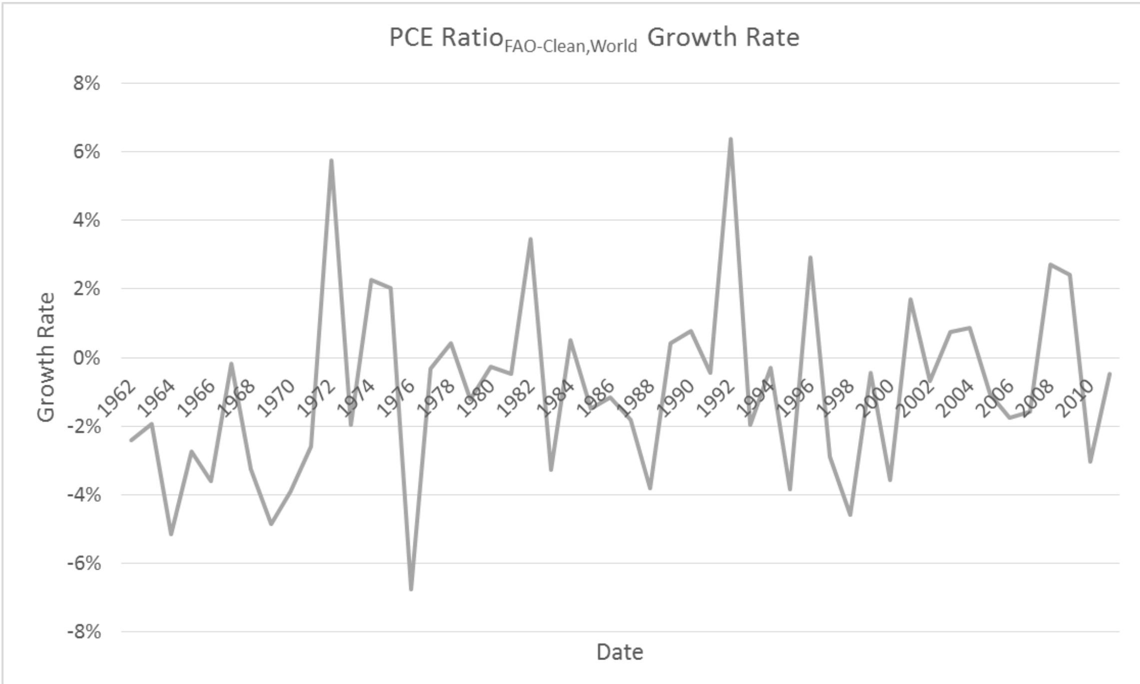

Figure 10 – FAO Weighted World Average PCE Ratio Growth Rate 1962-2011

COMPARISON OF GLOBAL TRENDS ACROSS DATA SETS

As stated in the introduction, the main purpose of this thesis was to create the PCE $\text{Ratio}_{\text{FAO-Clean}}$ dataset and to assess the usefulness of the PCE Ratio as a proxy for FCE Ratio measurements when analyzing total energy expenditures as a possible limit to economic growth. In order to validate the PCE Ratio as a proxy for the FCE Ratio, I compared time series trends between datasets and analyze divergences between world weighted averages for each measure. Additionally, in an effort to improve the usefulness of PCE Ratio measures, I attempted to establish reasonable scalar estimates between PCE and FCE Ratios on a global and regional level.

Weighted World Average Trends

The initial comparison plots PCE Ratio$_{FAO\text{-}Clean,World}$, FCE Ratio$_{USDA,World}$, and FCE Ratio$_{OECD,World}$ against one another in Figure 11. It should be noted that the PCE Ratio$_{FAO\text{-}Clean,World}$ graph in Figure 11 only includes data from China from 1973-2011; data prior to 1973 is excluded due to filtering. Due to China's large population and GDP, Figure 11 also includes a second PCE Ratio$_{FAO\text{-}Clean,World}$ graph containing additional data from 1961-1972 for China in order to assess trend impacts from the filtered exclusion. Figure 11 verifies that the jump seen between 1971 and 1973 in PCE-FAO Clean is due to China joining the dataset and that the downward trend from 1961 to 1971 is actually still present in the data.

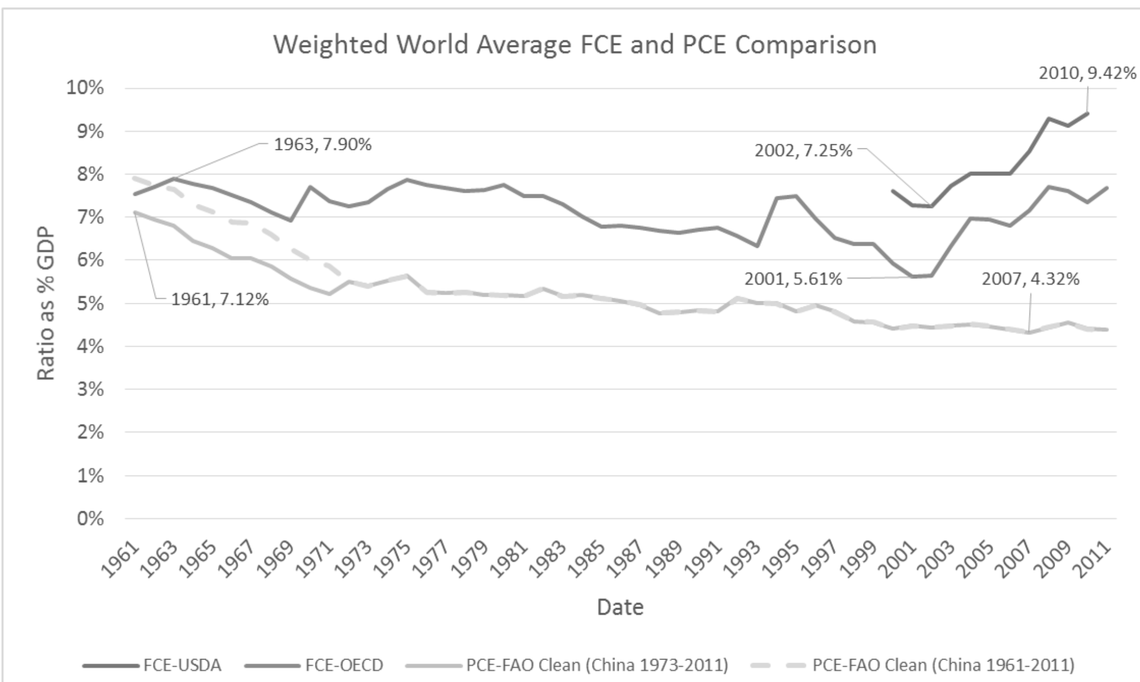

Figure 11 – Weighted World Average PCE and FCE Ratios Comparison 1961-2011

One of the more interesting findings is the similarity between trajectories for FCE Ratio$_{OECD,World}$ and PCE Ratio$_{FAO\text{-}Clean,World}$, at least up until the 2000's. As noted earlier, the jumps in the FCE $Ratio_{OECD,World}$ that occur in the late 1960's and early 1990's are a result of additional member nations joining the OECD database. Ignoring those anomalous jumps, the two ratios seem to be moving in concert with FCE $Ratio_{OECD,World}$ exceeding PCE $Ratio_{FAO\text{-}Clean,World}$ by a margin of 1-2.5%. This makes logical sense as one would expect FCE measures to capture higher spending associated with value-added processing of raw agricultural goods before purchase by the end-consumer. One anticipates this spread to grow over time; however, as countries – especially – more developed ones move to progressively more industrialized food systems with end consumption further and further removed from initial agricultural production. Unfortunately this trend is not strongly present between 1961 and 2000.

Following 2000, a disconnect occurs between FCE $Ratio_{OECD,World}$ and PCE $Ratio_{FAO\text{-}Clean,World}$. FCE $Ratio_{OECD,World}$ starts a steady climb from 2000 through 2011 reaching levels very close to the 1963 maximum, rapidly reversing the reductions realized over the previous four decades. Meanwhile, PCE $Ratio_{FAO\text{-}Clean,World}$ levels off while fluctuating between 4.32% and 4.52%. There appears to be a fundamental shift in world food markets during the 2000's; something that has been noted by others (Mitchell, 2008). This issue will be discussed more in Section 4, but it may present limits to the utility of the PCE Ratios as a proxy for FCE Ratios.

When examining FCE $Ratio_{USDA,World}$, one notes elevated levels that mirror FCE $Ratio_{OECD,World}$ almost identically. This is expected as the USDA dataset includes ratios for many of the less developed nations excluded from the OECD dataset. As a result, these countries skew the FCE $Ratio_{USDA,World}$ upward since they spend a greater portion of income on food compared to more developed nations. In comparison to PCE $Ratio_{FAO\text{-}Clean,World}$, the disconnect that occurs in 2000 is highlighted more starkly.

As noted above, the comparisons made in Figure 11 are a bit ambiguous in terms of validating the use of the PCE Ratio as a proxy for the FCE Ratio. The results are clouded by mismatches between the countries included in each of the various datasets. In order to make a cleaner comparison, I created two sub-datasets from the original USDA and FAO-Clean databases segregating countries into OECD and non-OECD categories according to their inclusion in the original OECD dataset. Matching the countries included in each of the three datasets, yielded sub-datasets of the USDA, OECD, and FAO-Clean datasets that each contained 36 countries.

I created weighted average for each sub-dataset in the same way I created the world weighted averages for FCE $Ratio_{USDA,World}$ and PCE $Ratio_{FAO\text{-}Clean,World}$. Figure 12 shows a plot of the weighted averages of FCE and PCE measure from all three sub-datasets with matching country lists.

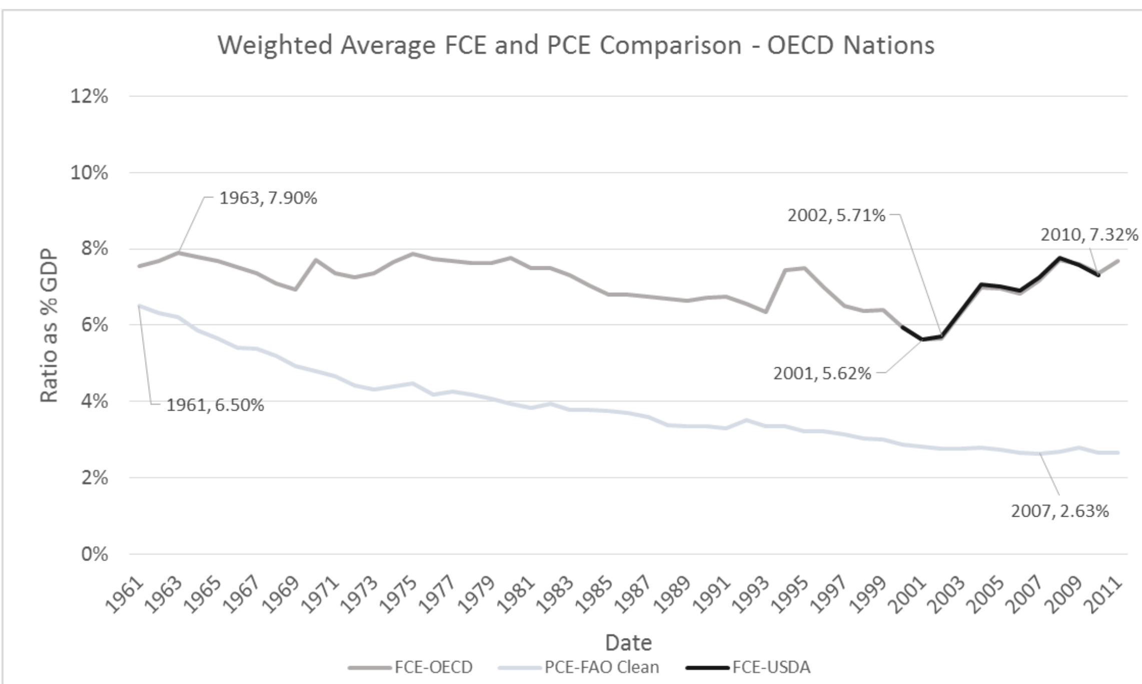

Figure 12 – Weighted Average FCE and PCE Ratios for OECD Nations 1961-2011

With matching country data, the trends in Figure 12 become clearer. The weighted PCE Ratio for OECD nations follows a steeper descending trajectory than that shown in Figure 11. As a result, the spread between PCE and FCE measures grows from the 1960's until the 2000's as was expected in the discussion above. Again, the weight average PCE Ratio for OECD nations levels off during the 2000's fluctuating around 2.7%, while the FCE Ratio increases following the disconnect.

It should also be noted that the weighted average FCE Ratio for OECD nations using the FCE $\text{Ratio}_{\text{USDA}}$ sub-dataset shifts down to more closely match FCE $\text{Ratio}_{\text{OECD,World}}$ almost identically. While this fact does not help validate the use of the PCE Ratio, it does verify the accuracy of the OECD database, which facilitates reliance on the FCE $\text{Ratios}_{\text{OECD}}$ for comparison to and validation of PCE Ratios prior to 2000.

For Non-OECD countries, I was able to match data from 46 countries between the USDA and FAO datasets. The weighted average PCE and FCE Ratios for this sub-dataset in shown in Figure 13 below. Unfortunately, due to the short time span of the USDA dataset, Figure 13 only shows trends from 2000 until 2010. Compared to the OECD countries, the non-OECD countries have significantly higher PCE and FCE Ratios as is expected. The FCE $\text{Ratio}_{\text{USDA,Non-OECD}}$ hits a minimum of 13.18% in 2002 before starting to steadily climb through 2010, reaching a high of 17.19%. The PCE $\text{Ratio}_{\text{FAO-Clean,Non-OECD}}$ follows a slowly declining trajectory starting at a high of 14.22% in 2000 and ending at 10.64% in 2010.

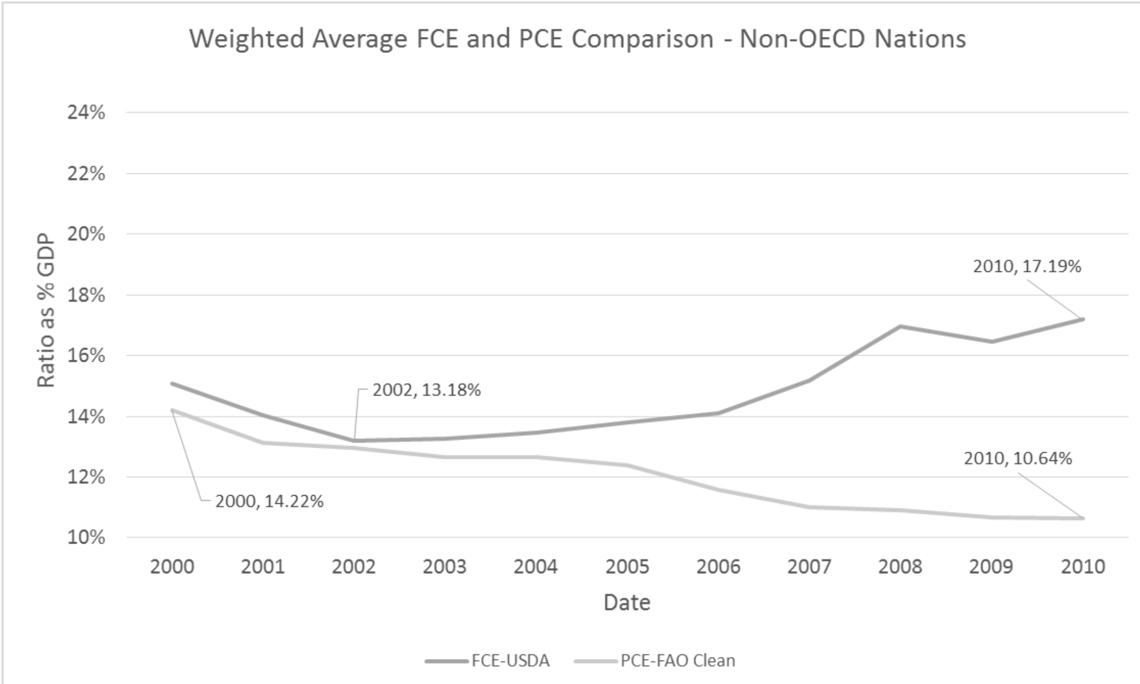

Figure 13 – Weighted Average FCE and PCE Ratios for Non-OECD Nations 2000-2010

Overall, the PCE and FCE Ratios for non-OECD countries appear much more tightly connected than the relationship described above for OECD countries. Again, this is expected as less developed nations will be more agrarian with a less industrialize food system resulting in a smaller spread between agriculture values and end consumption prices. Interestingly, though, the non-OECD countries also appear to have experienced a sudden disconnect between PCE and FCE Ratios just like the OECD countries did. This disconnect, however, was delayed about five years and does not occur until 2005. Following the disconnect, the PCE Ratio declines sharply for two years before leveling off while the FCE Ratio experiences sharp growth until 2008 before leveling off itself.

While a longer time series comparison would be enlightening, one is not possible given the available data. In an attempt to better understand the long-term relationship between PCE and FCE ratios for non-OECD countries, Figure 14 shows the short-term

FCE Ratio$_{USDA,Non\text{-}OECD}$ overlain on the long-term PCE Ratio$_{FAO\text{-}Clean,Non\text{-}OECD}$. While limited in its usefulness, this comparison provides a gut-check on which short-term trends seems more likely to hold over the long-term. Looking back from 2002, it appears that the PCE and FCE Ratios are following similar trajectories, which might suggest that non-OECD countries, on average, shared very tightly linked PCE and FCE Ratios. Similar to the potential limitations for PCE Ratio use noted above for OECD countries, it appears that the PCE Ratio for non-OECD countries may be best used for a retrospective look at historic food expenditures. The recent disconnect between PCE and FCE Ratios limits one's ability to use PCE Ratios to make reasonable inferences about FCE Ratios going forward. These limitations will be discussed further in Chapter 4.

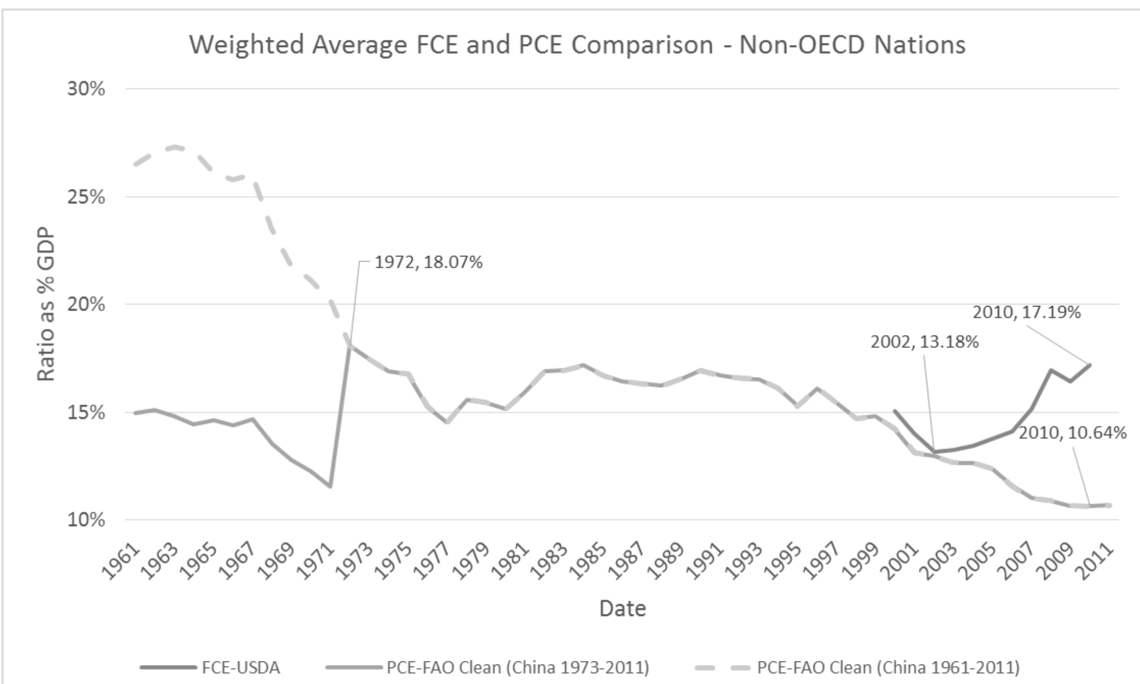

Figure 14 – Weighted Average FCE &PCE Ratios for Non-OECD Nations 1961-2010

Figure 14 also includes a second PCE $Ratio_{FAO\text{-}Clean,Non\text{-}OECD}$ graph containing data from China over the 1961-1972 timeframe that was filtered out of the FAO Clean dataset. It verifies that the large jump seen between 1971 and 1973 in PCE $Ratio_{FAO\text{-}Clean,Non\text{-}OECD}$ is due to China joining the dataset and that the downward trend from 1967 to 1971 is actually still present in the data.

PCE-to-FCE Scalars

In addition to the time series trend analysis discussed above, I also examined the relationships between PCE and FCE Ratios by calculating PCE-to-FCE Scalars. These scalars are calculated simply by dividing the FCE Ratio by the PCE Ratio for a given country or region. Since the FCE Ratios for OECD member countries are so similar between the USDA and OECD datasets, I decided to only use the FCE $Ratio_{OECD}$ datasets for further PCE Ratio – FCE Ratio comparative analysis for OECD member countries. I used the FCE $Ratio_{USDA}$ datasets for PCE Ratio – FCE Ratio comparative analysis for non-OECD member countries. Tabular presentation of scalar data is offered in Appendix III.

Figure 15 shows the PCE-to-FCE Scalars for both OECD and non-OECD nations. Examining the PCE-to-FCE Scalar for OECD countries, one sees the effect of the decoupling that occurred in 2000. Beginning in 1961 at 1.16, the scalar gradually increased over the next 20 year to approximately 2 by 1980, where it hovered for the next 20 years (except for a spike in the early 1990's) until 2000. In the 10 year between 2001 and 2011, the PCE-to-FCE Scalar jumped as much as it had the previous 40 years from 2 to 2.89 in 2011. This reaffirms the conclusion that food markets in developed nations have undergone a fundamental change since 2000.

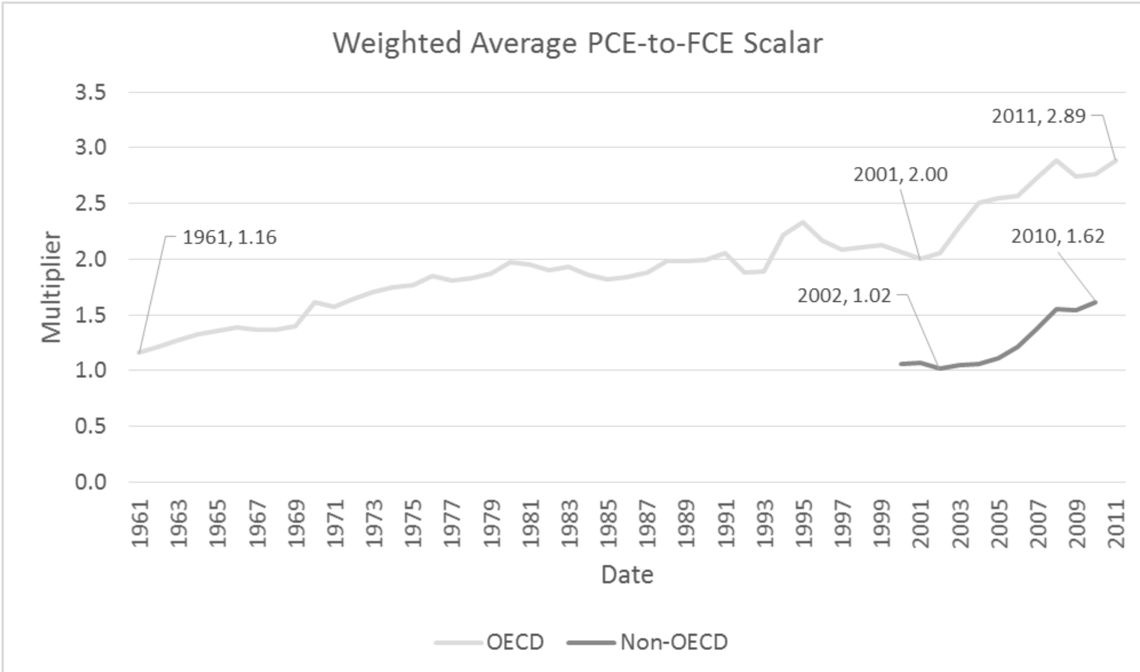

Figure 15 – OECD and Non-OECD Countries Weighted Average PCE-to-FCE Scalar

The PCE-to-FCE Scalar for non-OECD countries is also rising rather quickly. While we do not have data available for a historic comparison, one can assume that the PCE-to-FCE Scalar cannot go lower than 1 by definition – in a perfectly subsistent system, the PCE Value would equal the FCE Value resulting in a PCE-to-FCE Scalar of 1as people consumed exactly as much as they produced. Fluctuations around 1 may be expected due to data irregularities. Therefore, it may be reasonable to assume the PCE-to-FCE ratio for non-OECD nations had remained fairly stable around 1 for the previous 40 years before experiencing a 60% increase from 2000 to 2010. Again, this indicates that the PCE Ratio may be becoming a less useful tool for analysis in recent years as it is further removed from actual final food consumption values.

Breaking down the PCE-to-FCE Scalar analysis on a regional level reveals additional interesting trends worth noting. As shown in Figure 16, regional PCE-to-FCE

Scalars highlight similarities between some geographies while identifying differences between others. Regional Scalars generally vary between 2 and 5, following upward trends since 2000. The regional analysis can be further broken down into three pairings – Africa and Asia, North America and Europe, and Latin America and Oceania.

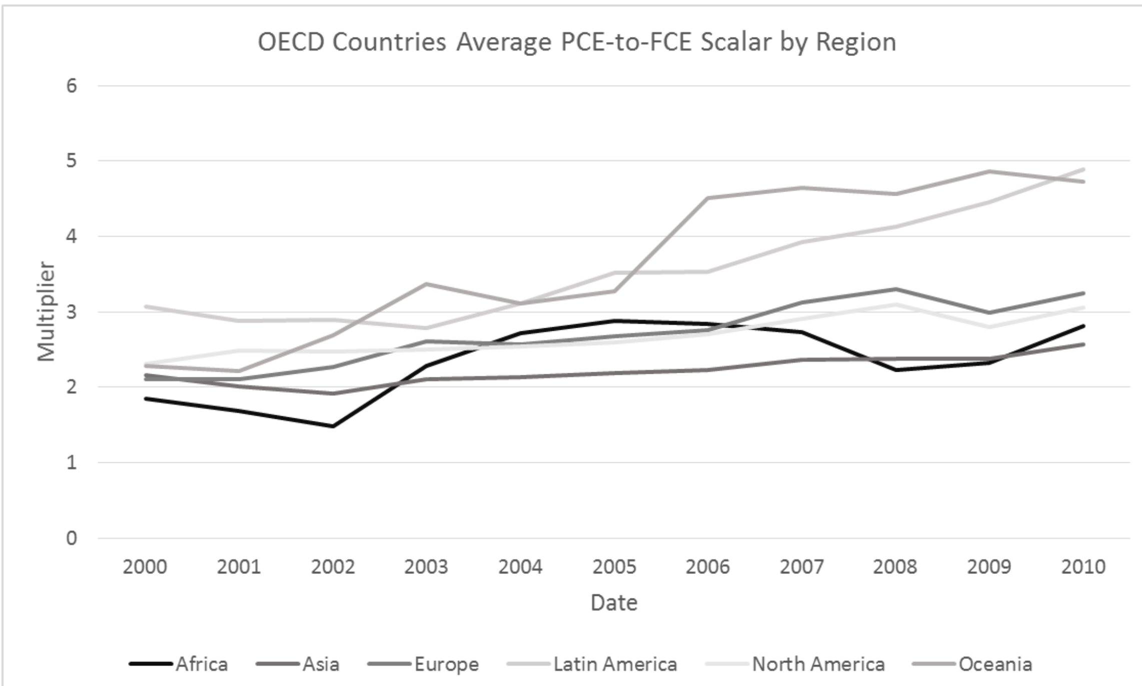

Figure 16 – OECD Countries Average PCE-to-FCE Scalar by Region

Africa and Asia tend to track together at the bottom of the scalar range. The Asia scalar is the most stable of all regions from 2000 to 2010. After fluctuating around 2 in the between 2000 and 2002, it steadily rises until reaching a value of 2.56 in 2010. Despite starting out with the lowest scalar (1.85 in 2000), Africa experiences an inflated scalar during the mid-2000s reaching a maximum of 2.87 in 2005 before returning to levels comparable to Asia by 2008.

The European and North American scalars track the most closely with each other when compared to the other pairings. North America experiences a steady PCE-to-FCE Scalar increase as well rising from 2.31 in 2000 to a peak of 3.10 in 2008 before settling just above 3 in 2010. The Europe scalar experiences slightly stronger growth starting at 2.1 in 2000, peaking at 3.3 in 2008, and settling at 3.24 in 2010. This close relationship is most likely due to strong cultural ties between nations in each region and tight linkages between these western economies.

Oceania starts off with a scalar similar to that of North America and Europe in the low 2's before racing up to join Latin America with a scalar above 3 by 2003 before maxing out close to 5 at 4.86 in 2009. Latin America starts out with a stable scalar around 3 which then experiences steady growth after 2003 until it ends at a high of 4.89 in 2010. These elevated PCE-to-FCE Scalars may result from the geographic isolation of Oceania nations and the rugged terrain in Latin American countries which makes transportation and importation of food products more expensive due to higher fuel costs.

Figure 17 presents a regional analysis of PCE-to-FCE Scalars for non-OECD countries. North America and Oceania do not appear since the only nations in each region with data are included in the OECD country analysis. Compared to all the regional scalars for OECD nations, the non-OECD scalars are lower as is expected due to less industrialized national food systems. Africa has the lowest scalar which shows only modest increases from about 1.25 to just over 1.5, which is no surprise given that the least developed African nations are among the poorest in the world. Asia has a similarly stable, but slightly higher, scalar that ranges from 1.6 in 2000 to 2.25 in 2010. The Europe scalar experiences the strongest growth throughout the 2000s, more than doubling from 1.26 to 2.56 in ten years. Finally, similar to the OECD scalars, Latin America has the highest scalar of any region throughout the 2000s despite a strong dip from 2001-2003. The Latin America scalar reaches a maximum of 3.88 in 2010. Again, this may be due to excessive transportation costs for food products due to the rugged terrain in the region separating farm land from urban development.

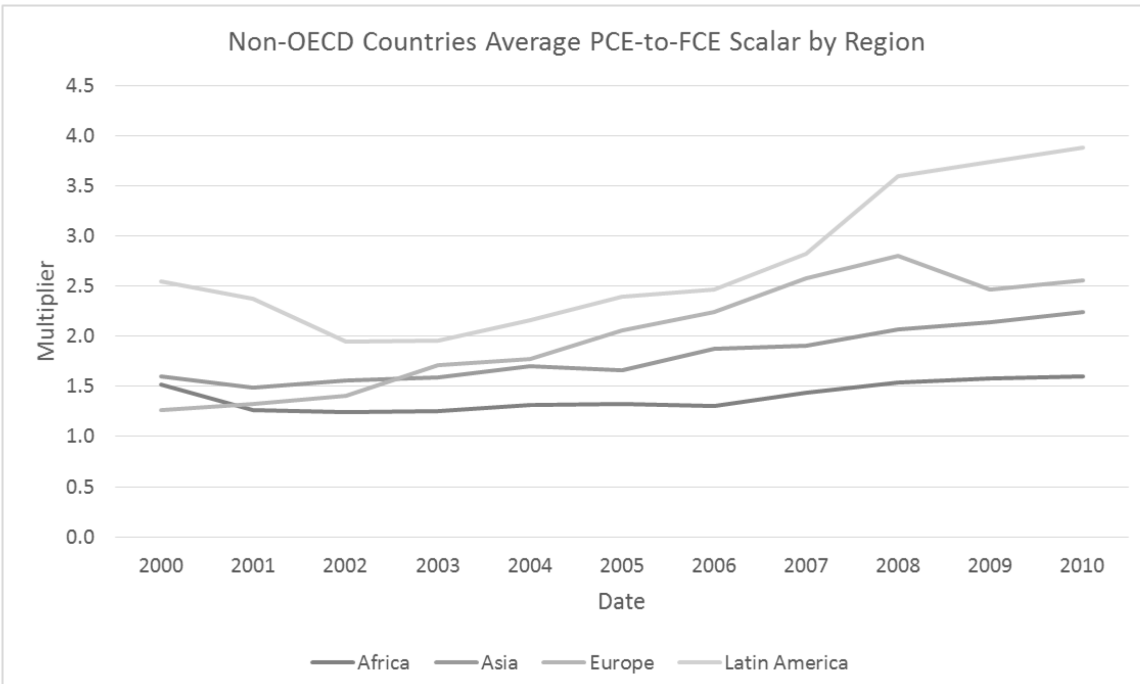

Figure 17 – Non-OECD Countries Average PCE-to-FCE Scalar by Region

Chapter 4: Discussion of Results

In this chapter, I offer a discussion of the meaning of the results described in Chapter 3. I discuss possible explanations for some of the trends noted, as well as, an explanation for what may have changed during the 2000's to cause the drastic changes in trends noted over the past decade. Following this discussion, I offer my suggestion for how to best use the available datasets to better understand the potential constraints on economic growth resulting from rising food costs. Finally I combine my work with that of others (King and Maxwell) to create a more complete analysis of total global energy expenditure and its effect on economic growth.

Comparing PCE and FCE

Initially, I had posited that PCE measures may provide more insight into economic impacts associated with changes in food markets. My reasoning concluded that as consumers hit budgetary limits, their preferences would shift and they might buy cheaper, less processed food items. As a result, PCE values would more accurately reflect minimum food expenditure levels, providing a stable and conservative measure to use for analysis. This proposition; however, did not account for several central tenants of modern industrialize agro-food systems.

First, as national agro-food systems industrialize, food distribution infrastructure changes and consumer choice is limited. In order to improve production efficiency, industrial agro-food systems have transformed community farms into large monoculture operations far from population centers producing commoditized goods for wholesale purchase by big food producers not end consumers (Wilkes & Wilkes, 1972). As the industry as evolved, it has shifted from a manufacturer (farmer) driven industry to one organized and managed by the retail arm (grocery store chains) (Burch & Lawrence, 2005). As a result, a monopsony has formed in food distribution channels where food producers are forced to sell to a small number of globally-focused retailers who can and do exercise extreme purchasing power over the market (Burch & Lawrence, 2005). As a result, consumers are forced into the mainstream retail sector and don't have the ability to buy directly.

To a certain extent, though, things are shifting in this market as more consumers become more concerned with how and where their food is produced (Weatherell et al., 2003). There is a growing interest in more socially embedded food systems like community supported agriculture that involve more face-to-face interaction between producers and consumers (Hinrichs, 2001). These options are still currently limited, and even when they are available often come with a higher price tag than conventional mainstream retail food options. As Watts et al., 2005 highlights, these more embedded systems are usually weaker systems since they focus on the food offered as opposed to ways to more efficiently distribute the food they produce.

PCE – FCE DIVERGENCE

As noted numerous times in Chapter 3, there was an easily identifiable change in the relationship between PCE and FCE measures for both OECD and non-OECD nations in the 2000s. While there are some dissenting opinions (Ajanovic, 2011), the majority of the literature points towards use of food for fuel as feedstock into biofuel production as a main driving force behind rapidly escalating food prices in both OECD and non-OECD countries since 2000 (Mitchell, 2008, Rosegrant, 2008, Trostle, 2008). Renewable energy policies in several nations – particularly the US – have fueled this demand since 2000 which has resulted in higher grain and corn prices on the world market. While other factors like poor agriculture policies and rising production costs have also contributed to the rise (Mitchell, 2008), these alone would not have caused the increased prices and end consumption spending increases witnessed over the past decade.

PROPOSED GDP EXPENDITURE 'FOOD' DATASET

Assuming a drastic reversal of agro-food system industrialization and bio-fuel production will not occur moving forward, these issues pose serious limitations on the usefulness of PCE Ratio measure. As the spread between PCE and FCE values has grown more significant over the past 30 years for OECD countries (and past 10 for non-OECD nations), it has become a less reliable indicator of the real spending choices end consumers face. As a result, it substantially underestimates actual food expenditures and does not fully capture the impact food expenditures might have on economic growth.

Fortunately, between all three available datasets, a more functional hybrid dataset exists that can be used to calculate values for GDP Expenditure 'Food'. Based off the trends analyzed in Chapter 3, PCE Ratio values for non-OECD nations appear to match FCE Ratios from the USDA dataset very closely prior to 2003 when biofuel production began to impact food markets. Based off this observation, the FAO-Clean dataset can be used as a base for the GDP Expenditure 'Food' dataset. Similarly, FCE Ratios from the OECD dataset matched those from the USDA dataset almost exactly when accounting for the same country set. With this validation of the OECD accounting methods, I layered the OECD FCE values on top of the FAO-Clean PCE values where available. This results in a dataset that has uses PCE values as a proxy for FCE values for non-OECD nations, while using more accurate FCE values for OECD nations. Finally, I layered the USDA FCE values on top of this combined dataset. As mentioned, this did not alter FCE values for OECD nations significantly. It did register a significant increase over PCE values for the non-OECD nations included in the USDA dataset, but that is a more accurate depiction of the actual situation following the divergence in non-OECD PCE and FCE values. The USDA dataset did not include data for almost 96 countries in the FAO-Clean dataset. The resulting continued reliance on FAO PCE values results in a conservative underestimate for the actual FCE value for these countries, but inclusion of these countries still provides more information than if they were excluded. Table 2 provides a summary of the data sources used for each type of country while compiling the hybrid dataset:

Country Type	**1961-1999**	**2000-2010**
OECD Member Nation	OECD FCE Ratio if available; FAO PCE Ratio when no OECD data was available	USDA FCE Ratio if available; OECD FCE Ratio when no USDA data was available
Non-OECD Nation	FAO PCE Ratio	USDA FCE Ratio if available; FAO PCE Ratio when no USDA data was available

Table 2 – Description of Dataset Usage for GDP Expenditure 'Food' Compilation

GDP EXPENDITURE 'FOOD'

Utilizing this hybrid dataset, I was able to create a GDP Expenditure 'Food' measure for the global economy as shown in Figure 18 below – tabular data presented in Appendix IV. This was done in the same manner in which I created the original PCE and FCE Ratios for the global economy. I summed all available consumption data in the GDP

Expenditure ‘Food’ dataset for each year and divided that by the sum of national GDP’s for all countries with consumption data that year.

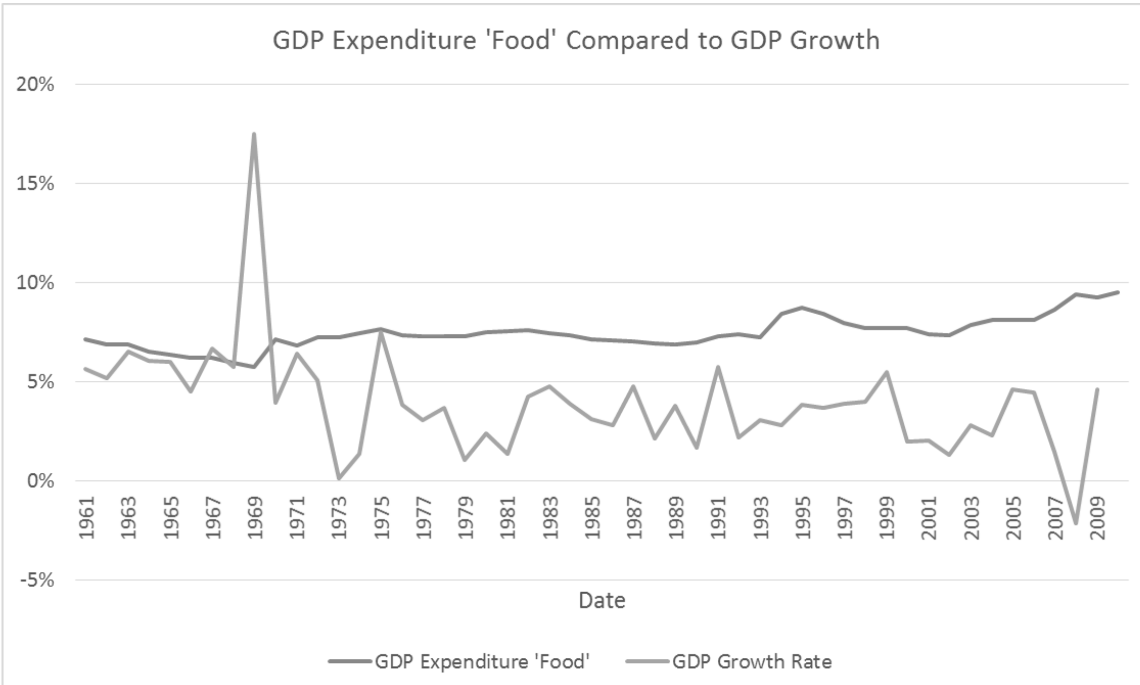

Figure 18 – All Countries GDP Expenditure ‘Food’ Compared to GDP Growth

As can be seen in Figure 18, GDP Expenditure ‘Food’ for the global economy has historically remained very stable. Aside from a jump between 1969 and 1971 which results from China’s first appearance in the dataset, the global GDP Expenditure ‘Food’ hovered around 7-7.5% up until the early 1990s. In 1993, a sharp increase in food expenditures in Japan resulted in a temporary increase in GDP Expenditure ‘Food’ which peaked at 8.73% in 1995 before returning to historic levels around 7.3% in 2001 and 2002. Following 2003, GDP Expenditure ‘Food’ begins its steady increase to a historically high level of 9.52% in 2010.

For comparison, Figure 18 also includes a measure of the global GDP growth rate. The stability of GDP Expenditure 'Food' indicates that it has limited impact on GDP growth, at least historically. During the past decade; however, increase food expenditures associated with price increases due to biofuel production may also point toward the existence of a threshold value where food expenditures begin to hinder economic growth. It may not be a coincidence that historically high food expenditures coincide with the Great Recession and one of the most tepid economic recoveries in history.

To expand upon Maxwell, 2013, I created a subset of the GDP Expenditure 'Food' dataset which only included data for the same countries Maxwell examined GDP Expenditure 'Energy' values for from 1978-2010. Figure 19 shows the resulting information. The GDP Expenditure 'Energy' data is a direct replication of the data analyzed by Maxwell. GDP Expenditure 'Energy + Food' was calculated simply by adding GDP Expenditure 'Energy' and GDP Expenditure 'Food' together. The GDP growth rate has been adjusted compared to Figure 18 due to the smaller country list included in the dataset.

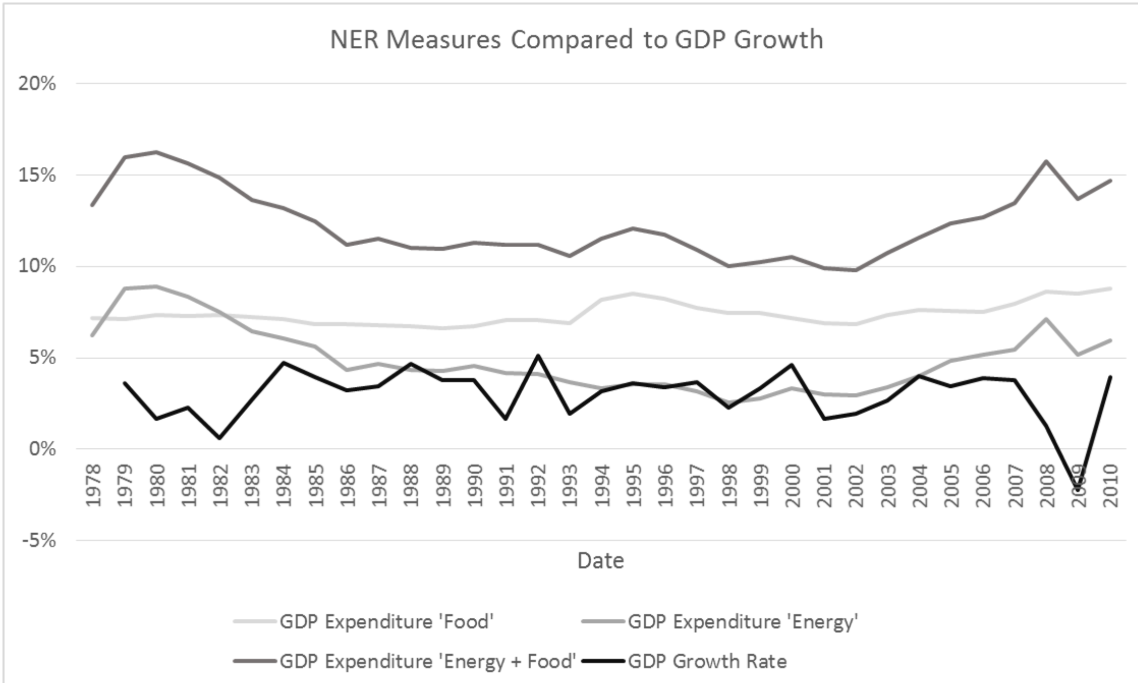

Figure 19 – Selected 44 Countries Expenditure Measures Compared to GDP Growth

Even in this comparison, the relationship between economic growth and GDP Expenditure ‘Energy’ is stronger than with GDP Expenditure ‘Food’. That said, the Great Recession coincides with the only time where both measures are increasing substantially. When examining the GDP Expenditure ‘Energy + Food’ measure, expenditures exceeding 15% of GDP seem to indicate a threshold value beyond which the economy destabilizes.

Additionally, while fluctuations in GDP Expenditure ‘Energy’ may have a bigger impact on economic growth, it is worth noting that GDP Expenditure ‘Food’ accounts for a larger percentage of GDP expenditures. Not only does this validate the importance of including GDP Expenditure ‘Food’ in net energy analysis, but it also indicates that recent increases in food expenditures may pose serious difficulties for continued economic growth. The mere fact that humanity has begun to use food resources as industrial energy resources may be proof enough that we’re approaching limits to the type of growth the Earth can sustain.

Chapter 5: Conclusion and Discussion of Further Research

Conclusion

This thesis calculated PCE and FCE values for various countries using three different datasets from the USDA, OECD, and FAO. While FCE values from the USDA and OECD datasets provide a much more accurate view of food expenditures, their limited breadth makes time series analysis difficult. As a result, the FAO PCE values were calculated to serve as a proxy since the FAO dataset included data from more countries over a long time frame.

This work was performed to try to analyze what, if any, effects food expenditures have on economic performance. This work builds off the work of King and Maxwell who calculated the EIR and NER for fossil fuel and electricity energy consumption and expenditures. Food represents an energy source critical to human survival which as to-date been left out of analysis of the impact of energy consumption on economic growth.

This analysis was conducted from a macroecological economic perspective to address the possibility of existing constraints to economic growth imposed by energy resources. As noted earlier in this paper, per capita consumption of critical resources has been declining over past decades. While this may signal more efficient resource use, human and societal system require energy consumption scaled with the rate of population and economic growth (Brown et al., 2013). These declining consumption trends may actually indicate that human society is reaching resource constraints on a global scale that may hinder future growth.

The resulting end product of the analysis conducted in this paper is a hybrid dataset made up of components of all three datasets considered. This hybrid represents the most accurate estimates of actual food expenditures available for the given time frame and country set. Use of this hybrid dataset allowed for calculation of GDP Expenditure 'Food' and GDP Expenditure 'Energy + Food' values in order to better understand the limits to growth. Findings indicate that increased expenditures on energy have a more detrimental effect on economic growth; however, food expenditures have remained much more stable over since 1960. The recent trend towards increasing food expenditures resulting from use of food resources in biofuel production may indicate that society is entering a new environment where food expenditures may also pose limits to growth.

AREAS FOR FURTHER RESEARCH

One area for further research would be to further strengthen the GDP Expenditure 'Food' dataset. As described earlier in this paper, coming up with good estimates of food expenditures is notoriously difficult. It may not be possible to build a better historic dataset, but efforts should be made to continue and even expand calculations of global food expenditures moving forward. This may be best performed using private data available from Euromonitor in similar fashion to the USDA dataset built by Birgit Meade. As mentioned above, recent trends towards using food resources as feedstock into biofuel production signals a new era for food expenditures. It will be critical to monitor these trends going forward.

Another interesting research topic could focus on expanding the GDP Expenditure 'Energy + Food'/economic performance comparison to include more measure than just GDP growth rates. Other measures of interest may include debt, interest rates, and total factor productivity. Expanding these comparisons may shed light on possible feedback loops between different parts of the economic system.

Finally, it may be educational to make comparisons between food expenditures and some non-economic factors such as equality and state stability indices. For one, famines and food shortages have caused riots in regions of the world (Mitchell, 2008). Even if rising food prices and expenditures do not have a significant impact on economic performance directly, increased national and regional instability may result if the poor have to spend disproportionate amounts of their income on food. Such events may send strong ripples through the tightly interconnected global economy.

Appendices

APPENDIX I

Table 1. USDA Dataset Country List – All 2000 – 2010 Time Span

Algeria	Costa Rica	Indonesia	New Zealand	Spain
Argentina	Croatia	Iran	Nigeria	Sweden
Australia	Czech Republic	Ireland	Norway	Switzerland
Austria	Denmark	Israel	Pakistan	Taiwan
Azerbaijan	Dominican Republic	Italy	Peru	Thailand
Bahrain	Ecuador	Japan	Philippines	Tunisia
Belarus	Egypt	Jordan	Poland	Turkey
Belgium	Estonia	Kazakhstan	Portugal	Turkmenistan
Bolivia	Finland	Kenya	Qatar	Ukraine
Bosnia-Herzegovina	France	Kuwait	Romania	United Arab Emirates
Brazil	Georgia	Latvia	Russia	United Kingdom
Bulgaria	Germany	Lithuania	Saudi Arabia	United States
Cameroon	Greece	Macedonia	Singapore	Uruguay
Canada	Guatemala	Malaysia	Slovakia	Uzbekistan
Chile	Hong Kong	Mexico	Slovenia	Venezuela
China	Hungary	Morocco	South Africa	Vietnam
Colombia	India	Netherlands	South Korea	

Table 2. OECD Dataset Country List

Country	Start Date	End Date	Total Years	Country	Start Date	End Date	Total Years
Australia	1959	2012	53	Japan	2001	2011	10
Austria	1976	2012	36	Korea	1970	2012	42
Belgium	1995	2012	17	Luxembourg	1995	2012	17
Canada	1970	2010	40	Mexico	2003	2012	9
Chile	2008	2011	3	Netherlands	1980	2012	32
Czech Republic	1993	2012	19	New Zealand	1987	2011	24
Denmark	1966	2012	46	Norway	1970	2012	42
Estonia	1995	2012	17	Poland	1995	2012	17
Finland	1975	2012	37	Portugal	1995	2012	17
France	1959	2012	53	Slovak Republic	1995	2012	17
Germany	1991	2012	21	Slovenia	1995	2012	17
Greece	2005	2011	6	Spain	1995	2012	17
Hungary	1995	2012	17	Sweden	1980	2012	32
Iceland	1990	2012	22	Switzerland	1990	2011	21
Ireland	1995	2012	17	Turkey	1998	2012	14
Israel	2006	2012	6	United Kingdom	1995	2012	17
Italy	1970	2012	42	United States	1970	2012	42

Table 3. FAO Dataset Country List

Country	Start Date	End Date	Total Years	Country	Start Date	End Date	Total Years
Afghanistan	2002	2011	10	Dem. Rep. Congo	1961	2011	51
Albania	1980	2011	32	Denmark	1961	2011	51
Algeria	1961	2011	51	Dominica	1977	2011	35
Angola	1985	2011	27	Dominican Republic	1961	2011	51
Antigua and Barbuda	1977	2011	35	Ecuador	1961	2011	51
Argentina	1961	2011	51	Egypt	1961	2011	51
Armenia	1992	2011	20	El Salvador	1965	2011	47
Australia	1961	2011	51	Equatorial Guinea	1985	2011	27
Austria	1961	2011	51	Eritrea	1993	2011	19
Azerbaijan	1992	2011	20	Estonia	1993	2011	19
Bahamas	1961	2011	51	Ethiopia	1993	2011	19
Bahrain	1980	2011	32	Fiji	1961	2011	51
Bangladesh	1961	2011	51	Finland	1961	2011	51
Barbados	1961	2011	51	France	1961	2011	51
Belarus	1992	2011	20	Gabon	1961	2011	51
Belgium	2000	2011	12	Gambia	1966	2011	46
Belize	1961	2011	51	Georgia	1992	2011	20
Benin	1961	2011	51	Germany	1970	2011	42
Bermuda	1961	2011	51	Ghana	1961	2011	51
Bhutan	1980	2011	32	Greece	1961	2011	51
Bolivia	1961	2011	51	Grenada	1977	2011	35
Bosnia and Herzegovina	1994	2011	18	Guatemala	1961	2011	51
Botswana	1961	2011	51	Guinea	1986	2011	26
Brazil	1961	2011	51	Guinea-Bissau	1970	2011	42
Brunei Darussalam	1974	2011	38	Guyana	1961	2011	51
Bulgaria	1980	2011	32	Haiti	1998	2011	14
Burkina Faso	1961	2011	51	Honduras	1961	2011	51
Burundi	1961	2011	51	Hungary	1961	2011	51
Cabo Verde	1980	2011	32	Iceland	1961	2011	51
Cambodia	1993	2011	19	India	1961	2011	51
Cameroon	1961	2011	51	Indonesia	1961	2011	51
Canada	1961	2011	51	Iran	1965	2011	47
Central African Republic	1961	2011	51	Iraq	2000	2011	12
Chad	1961	2011	51	Ireland	1970	2011	42
Chile	1961	2011	51	Israel	1961	2011	51
China	1961	2011	51	Italy	1961	2011	51
Colombia	1961	2011	51	Japan	1961	2011	51
Comoros	1980	2011	32	Jordan	1975	2011	37
Congo	1961	2011	51	Kazakhstan	1992	2011	20
Costa Rica	1961	2011	51	Kenya	1961	2011	51
Côte d Ivoire	1961	2011	51	Kiribati	1970	2011	42
Croatia	1995	2011	17	Kuwait	1992	2011	20
Cuba	1970	2011	42	Kyrgyzstan	1992	2011	20
Cyprus	1975	2011	37	Lao	1984	2011	28
Czech Republic	1993	2011	19	Latvia	1992	2011	20

Table 3. FAO Dataset Country List (Cont.)

Country	Start Date	End Date	Total Years	Country	Start Date	End Date	Total Years
Lebanon	1988	2011	24	Saudi Arabia	1968	2011	44
Lesotho	1961	2011	51	Senegal	1961	2011	51
Liberia	1961	2011	51	Serbia	2006	2011	6
Lithuania	1992	2011	20	Seychelles	1961	2011	51
Luxembourg	2000	2011	12	Sierra Leone	1961	2011	51
Macedonia	1992	2011	20	Singapore	1961	2011	51
Madagascar	1961	2011	51	Slovakia	1993	2011	19
Malawi	1961	2011	51	Slovenia	1992	2011	20
Malaysia	1961	2011	51	Solomon Islands	1990	2011	22
Maldives	2001	2011	11	South Africa	1961	2011	51
Mali	1967	2011	45	Spain	1961	2011	51
Malta	1970	2011	42	Sri Lanka	1961	2011	51
Mauritania	1961	2011	51	St. Kitts and Nevis	1977	2011	35
Mauritius	1976	2011	36	St. Lucia	1980	2011	32
Mexico	1961	2011	51	St. Vincent and the Grenadines	1961	2011	51
Moldova	1992	2011	20	Sudan	1961	2011	51
Mongolia	1981	2011	31	Suriname	1975	2011	37
Montenegro	2006	2011	6	Swaziland	1970	2011	42
Morocco	1966	2011	46	Sweden	1961	2011	51
Mozambique	1980	2011	32	Switzerland	1970	2011	42
Namibia	1980	2011	32	Tajikistan	1992	2011	20
Nepal	1961	2011	51	Tanzania	1988	2011	24
Netherlands	1961	2011	51	Thailand	1965	2011	47
New Zealand	1970	2011	42	Timor-Leste	1999	2011	13
Nicaragua	1961	2011	51	Togo	1961	2011	51
Niger	1961	2011	51	Tonga	1981	2011	31
Nigeria	1961	2011	51	Trinidad and Tobago	1961	2011	51
Norway	1961	2011	51	Tunisia	1961	2011	51
Oman	1961	2011	51	Turkey	1961	2011	51
Pakistan	1961	2011	51	Turkmenistan	1992	2011	20
Panama	1961	2011	51	Tuvalu	1990	2011	22
Papua New Guinea	1961	2011	51	Uganda	1982	2011	30
Paraguay	1961	2011	51	Ukraine	1992	2011	20
Peru	1961	2011	51	United Arab Emirates	1975	2011	37
Philippines	1961	2011	51	United Kingdom	1961	2011	51
Poland	1990	2011	22	United States of America	1961	2011	51
Portugal	1961	2011	51	Uruguay	1961	2011	51
Qatar	2000	2011	12	Uzbekistan	1992	2011	20
Rep. Korea	1961	2011	51	Vanuatu	1979	2011	33
Romania	1980	2011	32	Venezuela	1961	2011	51
Russian Federation	1992	2011	20	Viet Nam	1984	2011	28
Rwanda	1961	2011	51	Yemen	1990	2011	22
Samoa	1982	2011	30	Zambia	1961	2011	51
Sao Tome and Principe	2001	2011	11	Zimbabwe	1961	2011	51

APPENDIX II

Table 4. FCE Ratios USDA Dataset

Country	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Algeria	15%	14%	14%	14%	16%	15%	15%	16%	19%	18%	19%
Argentina	28%	27%	10%	12%	12%	12%	12%	13%	15%	14%	14%
Australia	5%	5%	5%	6%	6%	6%	7%	7%	7%	7%	9%
Austria	5%	4%	5%	6%	6%	6%	6%	6%	7%	7%	6%
Azerbaijan	34%	30%	28%	27%	26%	22%	22%	23%	29%	29%	30%
Bahrain	7%	6%	6%	6%	5%	5%	5%	5%	5%	5%	5%
Belarus	19%	19%	20%	20%	21%	24%	25%	27%	32%	27%	26%
Belgium	5%	5%	5%	7%	7%	7%	6%	7%	7%	7%	7%
Bolivia	27%	25%	23%	21%	20%	20%	21%	22%	25%	26%	25%
Bosnia and Herzegovina	26%	26%	27%	31%	32%	32%	32%	35%	40%	37%	35%
Brazil	13%	11%	10%	11%	12%	15%	18%	20%	22%	22%	26%
Bulgaria	14%	14%	13%	15%	16%	16%	15%	18%	19%	19%	18%
Cameroon	24%	24%	26%	31%	33%	33%	34%	38%	42%	38%	36%
Canada	4%	4%	4%	5%	5%	5%	5%	6%	6%	6%	6%
Chile	13%	11%	10%	10%	12%	13%	14%	14%	15%	15%	16%
China	13%	12%	11%	11%	11%	10%	9%	10%	11%	11%	11%
Colombia	12%	12%	12%	10%	11%	12%	12%	14%	16%	15%	17%
Costa Rica	17%	18%	17%	16%	15%	16%	15%	16%	19%	20%	23%
Croatia	10%	12%	13%	15%	16%	16%	16%	17%	19%	19%	18%
Czech Republic	6%	6%	7%	8%	8%	8%	8%	9%	11%	10%	10%
Denmark	4%	4%	4%	5%	6%	5%	5%	6%	6%	6%	6%
Dominican Republic	25%	24%	22%	17%	18%	24%	22%	22%	23%	22%	22%
Ecuador	12%	14%	15%	15%	14%	14%	14%	14%	14%	15%	14%
Egypt	45%	40%	35%	28%	28%	30%	31%	35%	40%	45%	49%
Estonia	8%	8%	8%	9%	11%	11%	10%	11%	14%	14%	12%
Finland	5%	5%	5%	6%	6%	6%	6%	6%	7%	7%	7%
France	6%	6%	6%	8%	8%	8%	8%	8%	9%	9%	8%
Georgia	39%	34%	27%	27%	33%	31%	39%	38%	44%	41%	44%
Germany	5%	5%	5%	6%	7%	6%	6%	6%	7%	7%	6%
Greece	8%	9%	10%	13%	13%	13%	13%	14%	15%	15%	15%
Guatemala	29%	26%	28%	28%	29%	32%	32%	34%	39%	37%	38%
Hong Kong	9%	9%	8%	8%	7%	7%	7%	7%	7%	7%	7%
Hungary	6%	7%	8%	9%	9%	9%	9%	11%	12%	10%	10%
India	24%	23%	21%	22%	20%	20%	19%	21%	20%	18%	19%
Indonesia	24%	22%	25%	27%	25%	22%	26%	28%	29%	28%	32%
Iran	11%	10%	11%	10%	11%	12%	12%	13%	18%	18%	17%
Ireland	4%	3%	4%	4%	4%	4%	4%	4%	5%	5%	4%
Israel	10%	10%	9%	10%	9%	9%	9%	10%	12%	11%	11%
Italy	7%	6%	7%	8%	9%	9%	9%	9%	10%	10%	9%
Japan	10%	9%	9%	9%	9%	8%	7%	7%	8%	9%	9%
Jordan	35%	33%	32%	31%	33%	35%	35%	38%	39%	37%	40%
Kazakhstan	18%	16%	14%	16%	17%	18%	20%	22%	28%	24%	23%

Table 4. FCE Ratios USDA Dataset (Cont.)

Country	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Kenya	35%	33%	31%	33%	32%	34%	37%	39%	44%	43%	41%
Kuwait	4%	4%	4%	4%	4%	4%	4%	4%	5%	5%	6%
Latvia	12%	12%	12%	13%	13%	13%	13%	14%	17%	17%	13%
Lithuania	14%	13%	14%	16%	17%	17%	17%	18%	19%	17%	15%
Macedonia	17%	17%	21%	26%	26%	27%	27%	30%	36%	34%	33%
Malaysia	8%	8%	7%	7%	7%	7%	7%	7%	8%	7%	8%
Mexico	13%	15%	15%	15%	15%	16%	16%	17%	17%	14%	16%
Morocco	24%	21%	21%	24%	25%	25%	25%	27%	30%	30%	29%
Netherlands	4%	4%	4%	5%	5%	5%	5%	5%	6%	6%	5%
New Zealand	5%	5%	5%	7%	8%	8%	8%	9%	9%	8%	9%
Nigeria	16%	20%	27%	29%	25%	30%	28%	27%	29%	23%	24%
Norway	4%	4%	4%	5%	5%	5%	5%	6%	6%	6%	6%
Pakistan	33%	29%	29%	29%	30%	30%	31%	32%	32%	35%	38%
Peru	20%	20%	19%	19%	20%	19%	19%	19%	21%	21%	22%
Philippines	29%	26%	26%	25%	25%	26%	28%	30%	33%	32%	34%
Poland	11%	12%	12%	11%	12%	13%	13%	14%	17%	13%	14%
Portugal	8%	8%	8%	10%	11%	11%	11%	12%	13%	12%	11%
Qatar	1%	1%	1%	1%	2%	2%	2%	2%	3%	2%	2%
Rep. Korea	8%	7%	7%	7%	7%	8%	8%	8%	7%	6%	7%
Romania	14%	14%	14%	17%	19%	21%	22%	26%	28%	23%	23%
Russian Federation	10%	12%	12%	12%	15%	16%	17%	18%	23%	21%	22%
Saudi Arabia	7%	7%	7%	6%	6%	6%	6%	7%	7%	8%	8%
Singapore	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Slovakia	9%	9%	9%	11%	11%	10%	10%	11%	12%	12%	11%
Slovenia	6%	7%	7%	9%	9%	9%	8%	9%	10%	10%	10%
South Africa	10%	8%	7%	11%	13%	13%	13%	13%	11%	11%	13%
Spain	6%	6%	7%	8%	9%	9%	8%	9%	9%	9%	8%
Sweden	5%	4%	5%	6%	6%	6%	6%	6%	6%	6%	6%
Switzerland	5%	5%	5%	6%	6%	6%	6%	6%	6%	6%	6%
Thailand	15%	13%	14%	15%	15%	15%	16%	17%	18%	17%	19%
Tunisia	19%	18%	19%	21%	22%	21%	20%	21%	22%	21%	21%
Turkey	14%	11%	12%	15%	16%	17%	16%	18%	20%	18%	19%
Turkmenistan	15%	28%	28%	40%	60%	53%	49%	28%	25%	18%	18%
Ukraine	16%	17%	18%	18%	19%	25%	28%	34%	43%	34%	35%
United Arab Emirates	4%	4%	4%	4%	5%	6%	6%	6%	6%	7%	8%
United Kingdom	5%	5%	5%	5%	6%	5%	5%	6%	6%	5%	5%
United States (ERS)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Uruguay	18%	17%	13%	12%	13%	14%	15%	16%	19%	18%	21%
Uzbekistan	39%	30%	22%	19%	18%	17%	21%	22%	22%	25%	25%
Venezuela	14%	15%	12%	13%	13%	14%	15%	19%	24%	31%	33%
Viet Nam	26%	24%	23%	23%	23%	23%	24%	26%	32%	31%	30%
Total	7.60%	7.29%	7.25%	7.72%	8.00%	8.01%	8.00%	8.52%	9.29%	9.12%	9.42%

Table 5. FCE Ratios OECD Dataset

Country	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Australia	7.77%	7.89%	7.72%	7.64%	7.55%	7.66%	7.39%	7.05%	6.72%	6.37%	6.41%	6.88%	8.95%	9.19%	8.66%	8.60%	8.07%	8.75%	8.65%	8.96%	8.98%	8.05%	7.62%	7.34%	6.09%
Austria	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	9.79%	9.36%	9.27%	8.71%	8.56%	8.27%	8.05%	7.85%	7.82%	7.65%
Belgium	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Canada	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	7.10%	7.19%	7.02%	6.53%	5.99%
Chile	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Colombia	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Czech Republic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Denmark	#N/A	#N/A	#N/A	#N/A	#N/A	6.81%	6.87%	6.33%	6.08%	6.36%	6.30%	6.53%	8.09%	8.14%	8.62%	8.54%	8.80%	9.61%	9.33%	8.70%	7.17%	6.14%	5.47%	4.88%	4.56%
Estonia	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Finland	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	7.54%	8.09%	8.67%	8.50%	8.00%	7.78%	7.82%	8.23%	8.34%	8.52%	8.49%
France	7.48%	7.64%	7.94%	7.81%	7.71%	7.60%	7.41%	7.22%	7.09%	6.83%	6.68%	6.77%	6.66%	6.73%	7.02%	7.13%	7.35%	7.35%	7.26%	7.29%	7.59%	7.98%	8.37%	8.76%	8.91%
Germany	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Greece	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Hungary	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Iceland	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
India	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Ireland	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Israel	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Italy	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	3.80%	3.78%	3.78%	3.94%	4.19%	4.51%	4.87%	5.36%	5.62%	5.75%	6.06%	6.41%	7.09%	7.54%	7.75%	7.96%
Japan	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Korea	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	13.21%	12.90%	12.71%	12.75%	15.35%	14.39%	16.19%	16.38%	17.81%	19.66%	18.00%	17.40%	14.86%	12.85%	11.56%	10.45%
Luxembourg	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Mexico	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Netherlands	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	7.87%	7.58%	7.45%	7.25%	6.90%	6.82%
New Zealand	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Norway	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	6.61%	6.60%	6.88%	7.78%	7.81%	8.42%	7.98%	8.28%	8.20%	8.02%	8.07%	6.90%	6.30%	5.53%	4.84%	4.75%
Poland	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Portugal	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Russian Federation	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Slovak Republic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Slovenia	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
South Africa	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	15.64%	13.84%	14.96%	15.47%	16.73%	18.58%	17.65%	15.94%	17.22%	14.17%	10.42%
Spain	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Sweden	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	11.36%	9.69%	8.20%	6.99%	6.62%	6.47%
Switzerland	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Turkey	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
United Kingdom	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
United States	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	8.63%	8.14%	7.92%	7.89%	8.24%	8.26%	7.92%	7.65%	7.40%	7.36%	7.39%	7.01%	7.03%	6.68%	6.34%	6.12%
Total	7.54%	7.69%	7.90%	7.77%	7.68%	7.52%	7.35%	7.10%	6.92%	7.71%	7.37%	7.26%	7.36%	7.65%	7.87%	7.74%	7.68%	7.62%	7.62%	7.76%	7.49%	7.49%	7.30%	7.03%	6.79%

Table 5. FCE Ratios OECD Dataset (Cont.)

Country	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Australia	5.89%	6.23%	6.91%	7.07%	6.80%	6.89%	6.52%	5.85%	6.34%	6.41%	6.54%	6.15%	5.17%	5.21%	4.68%	4.33%	4.57%	5.51%	6.09%	6.35%	6.45%	7.12%	7.19%	6.70%	7.97%	8.95%
Austria	7.51%	7.37%	7.21%	7.01%	6.84%	6.81%	6.81%	6.76%	6.55%	6.11%	5.94%	5.82%	5.61%	5.33%	4.48%	4.39%	4.55%	5.39%	5.87%	5.73%	5.53%	5.90%	6.36%	6.20%	5.87%	6.08%
Belgium	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	7.17%	6.90%	6.64%	6.46%	6.15%	5.07%	5.05%	5.37%	6.51%	6.91%	6.65%	6.38%	6.87%	7.76%	7.80%	7.42%	7.58%
Canada	5.93%	6.14%	6.30%	6.45%	6.64%	6.90%	6.33%	5.88%	5.28%	5.18%	5.18%	4.96%	4.56%	4.40%	4.29%	4.18%	4.11%	4.59%	4.84%	5.04%	5.29%	5.53%	5.70%	5.74%	6.25%	6.44%
Chile	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	12.29%	11.75%	12.97%	14.03%
Colombia	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	12.43%	11.97%	11.57%	10.14%	11.04%	12.38%	12.05%	13.88%	15.93%	14.82%	16.60%	17.20%
Czech Republic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	6.50%	6.62%	7.12%	7.45%	6.90%	7.31%	6.89%	6.03%	6.05%	6.88%	7.41%	7.96%	7.65%	7.68%	8.38%	10.32%	9.11%	8.90%	9.70%
Denmark	5.73%	6.60%	6.71%	6.24%	7.13%	6.69%	7.02%	6.23%	6.29%	7.09%	6.65%	5.77%	5.59%	5.08%	4.29%	4.19%	4.40%	5.15%	5.54%	5.32%	5.17%	5.71%	6.33%	6.24%	5.93%	6.19%
Estonia	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	8.66%	9.83%	10.35%	9.69%	9.45%	7.91%	7.79%	8.33%	9.61%	11.00%	10.90%	10.74%	11.78%	15.15%	14.75%	12.84%	13.15%
Finland	8.53%	8.29%	7.96%	7.61%	7.46%	7.95%	8.12%	8.07%	7.83%	7.11%	6.43%	6.05%	5.81%	5.77%	4.79%	4.75%	4.92%	5.91%	6.17%	5.96%	5.82%	6.24%	7.11%	7.43%	6.77%	7.28%
France	8.92%	8.81%	8.45%	8.26%	8.12%	8.05%	7.78%	7.71%	7.52%	7.40%	7.25%	7.15%	7.03%	6.83%	5.82%	5.75%	6.12%	7.37%	7.83%	7.57%	7.39%	7.88%	8.64%	8.40%	7.95%	8.22%
Germany	#N/A	#N/A	#N/A	#N/A	#N/A	6.97%	6.99%	6.92%	6.72%	6.65%	6.50%	6.27%	6.16%	6.02%	5.07%	4.92%	5.10%	5.97%	6.31%	6.11%	5.89%	6.15%	6.71%	6.75%	6.28%	6.55%
Greece	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	11.79%	10.81%	11.91%	13.17%	13.14%	13.05%	14.25%
Hungary	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	9.65%	9.00%	8.39%	8.02%	7.33%	6.46%	6.82%	7.60%	8.87%	9.47%	9.15%	8.67%	10.62%	11.74%	10.09%	9.64%	10.21%
Iceland	#N/A	#N/A	#N/A	#N/A	9.24%	9.28%	10.07%	8.16%	7.43%	7.87%	7.57%	7.14%	7.12%	6.94%	6.21%	5.17%	5.67%	6.14%	6.39%	6.48%	5.97%	6.49%	5.35%	4.62%	4.93%	5.36%
India	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	19.90%	19.93%	19.09%	21.11%	20.69%	19.38%	#N/A	#N/A
Ireland	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	5.67%	5.38%	4.78%	4.51%	4.12%	3.64%	3.55%	3.61%	4.12%	4.30%	4.12%	4.14%	4.49%	4.98%	4.63%	4.21%	4.47%
Israel	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	8.88%	9.41%	11.64%	10.78%	11.27%	11.78%
Italy	8.07%	7.97%	7.74%	7.73%	7.77%	7.89%	8.14%	8.10%	8.08%	8.08%	8.16%	8.06%	8.06%	7.93%	6.76%	6.47%	6.88%	8.38%	9.04%	8.86%	8.76%	9.37%	10.08%	9.98%	9.30%	9.65%
Japan	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	13.00%	13.69%	11.08%	9.56%	9.14%	10.35%	10.09%	8.74%	8.25%	8.41%	8.61%	7.78%	6.90%	6.48%	7.33%	8.43%	8.58%	9.04%
Korea	9.66%	9.84%	10.74%	11.91%	11.50%	11.15%	10.04%	9.51%	9.74%	9.62%	8.95%	7.59%	5.44%	6.65%	6.76%	5.78%	5.80%	5.92%	6.04%	6.53%	6.64%	6.66%	5.90%	5.28%	5.92%	6.36%
Luxembourg	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	4.45%	4.46%	4.36%	4.25%	3.96%	3.17%	3.13%	3.35%	3.60%	3.74%	3.54%	3.46%	3.66%	4.05%	4.00%	3.69%	3.91%
Mexico	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	13.89%	13.79%	14.65%	14.15%	14.81%	15.45%	14.01%	15.12%	15.95%
Netherlands	6.59%	6.25%	5.98%	5.80%	5.54%	5.39%	5.38%	5.27%	5.23%	5.12%	5.01%	4.94%	4.91%	4.77%	4.00%	3.97%	4.28%	5.10%	5.38%	5.06%	5.01%	5.32%	5.80%	5.71%	5.38%	5.60%
New Zealand	#N/A	6.68%	7.50%	7.19%	7.45%	7.06%	6.59%	6.24%	6.84%	7.44%	7.83%	7.47%	6.14%	5.92%	5.10%	4.74%	5.30%	6.70%	7.49%	7.93%	7.41%	8.38%	8.11%	7.91%	9.12%	10.23%
Norway	5.68%	6.41%	6.56%	6.09%	6.72%	6.49%	6.70%	5.70%	5.54%	6.05%	5.69%	5.07%	4.83%	4.74%	4.17%	3.99%	4.46%	5.10%	5.16%	5.29%	5.23%	5.72%	6.23%	5.94%	6.25%	6.77%
Poland	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	15.09%	15.63%	13.54%	12.91%	11.07%	10.65%	11.66%	11.51%	11.31%	12.06%	13.17%	13.19%	14.27%	16.46%	12.89%	13.09%	12.94%
Portugal	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	9.27%	9.18%	8.91%	9.18%	9.11%	7.71%	7.77%	8.28%	10.20%	11.02%	10.71%	10.83%	11.73%	13.01%	12.27%	11.44%	12.22%
Russian Federation	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	12.79%	13.93%	15.74%	17.97%	22.10%	20.77%	23.30%	25.82%
Slovak Republic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	9.14%	8.79%	9.51%	9.70%	10.00%	8.80%	8.70%	9.15%	10.55%	11.02%	10.24%	9.83%	10.52%	11.41%	11.26%	10.14%	10.47%
Slovenia	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	6.12%	6.50%	6.87%	7.20%	7.28%	6.39%	6.51%	7.03%	8.59%	9.02%	8.44%	8.04%	8.82%	9.67%	9.93%	9.57%	10.21%
South Africa	12.32%	15.51%	15.47%	14.85%	17.17%	18.57%	20.89%	19.13%	19.23%	20.02%	17.34%	17.31%	15.27%	13.73%	12.10%	10.05%	9.08%	13.19%	15.87%	16.14%	15.67%	15.71%	14.48%	15.29%	17.58%	18.30%
Spain	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	8.03%	7.96%	7.65%	7.32%	7.09%	6.13%	6.06%	6.55%	7.86%	8.47%	8.29%	8.26%	8.86%	9.66%	9.04%	8.80%	9.23%
Sweden	8.08%	8.94%	9.22%	8.76%	9.79%	9.80%	9.63%	7.47%	7.44%	7.74%	7.59%	6.50%	6.04%	5.61%	4.86%	4.42%	4.78%	5.66%	5.90%	5.56%	5.50%	5.94%	6.33%	5.96%	5.98%	6.47%
Switzerland	#N/A	#N/A	#N/A	#N/A	6.26%	6.21%	6.28%	5.83%	6.20%	7.13%	6.64%	5.51%	5.39%	5.17%	4.45%	4.51%	4.85%	5.62%	5.79%	5.57%	5.28%	5.26%	5.89%	6.07%	6.00%	6.74%
Turkey	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	17.98%	16.40%	15.41%	12.05%	13.55%	17.04%	18.49%	20.13%	19.13%	21.45%	23.40%	21.33%	23.49%	21.90%
United Kingdom	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	5.66%	5.64%	5.75%	5.70%	5.49%	4.95%	4.63%	4.76%	5.03%	5.51%	5.32%	5.26%	5.60%	5.40%	4.88%	4.89%	5.13%
United States	6.04%	5.83%	5.74%	5.70%	5.75%	5.72%	5.45%	5.30%	5.21%	5.09%	5.00%	4.82%	4.66%	4.62%	4.52%	4.56%	4.48%	4.47%	4.43%	4.40%	4.34%	4.37%	4.51%	4.56%	4.48%	4.56%
Total	6.80%	6.75%	6.69%	6.64%	6.71%	6.75%	6.57%	6.34%	7.45%	7.49%	6.97%	6.51%	6.37%	6.38%	5.93%	5.61%	5.65%	6.33%	6.98%	6.94%	6.81%	7.17%	7.71%	7.60%	7.35%	7.69%

Table 6. PCE Ratios FAO Dataset - Deleted Values Shaded

Country	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Afghanistan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Albania	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	16.25%	16.93%	17.25%	18.23%	17.04%	16.65%
Algeria	23.51%	28.73%	20.42%	18.70%	19.53%	14.77%	15.10%	16.74%	14.50%	13.26%	16.22%	12.65%	12.19%	15.04%	18.11%	13.74%	12.84%	12.77%	12.53%	15.06%	14.31%	12.46%	11.82%	10.80%	12.34%
Angola	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5.09%
Antigua and Barbuda	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	11.52%	13.16%	12.83%	15.10%	14.80%	14.12%	13.31%	13.69%	11.33%
Argentina	9.68%	8.91%	9.71%	7.19%	5.37%	6.71%	8.93%	8.25%	7.87%	7.16%	6.26%	6.14%	4.02%	3.80%	6.35%	6.40%	4.53%	6.31%	5.23%	4.90%	4.37%	7.34%	5.17%	6.98%	8.06%
Armenia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Australia	3.23%	3.38%	3.56%	2.74%	2.66%	3.48%	2.46%	3.36%	3.17%	2.80%	2.63%	2.18%	2.00%	0.99%	0.77%	1.33%	1.54%	2.42%	1.98%	0.08%	0.67%	0.94%	2.60%	2.16%	1.90%
Austria	6.06%	5.92%	6.01%	5.80%	5.20%	5.36%	5.13%	5.08%	4.62%	4.35%	4.14%	3.79%	4.13%	3.92%	3.94%	3.88%	3.90%	3.97%	3.82%	3.89%	3.56%	3.70%	3.33%	3.41%	3.26%
Azerbaijan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bahamas	5.29%	4.65%	4.54%	4.74%	4.44%	4.94%	4.70%	4.71%	5.97%	6.32%	5.86%	6.36%	6.47%	7.94%	8.11%	8.30%	5.64%	4.71%	4.91%	6.31%	4.96%	6.73%	5.62%	5.25%	5.05%
Bahrain	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6.21%	5.62%	6.22%	6.08%	5.98%	5.69%
Bangladesh	23.96%	21.01%	25.94%	22.53%	20.43%	20.70%	24.13%	22.58%	23.28%	21.94%	22.15%	25.85%	32.68%	28.70%	31.31%	26.38%	23.73%	25.39%	22.38%	25.35%	22.15%	23.10%	22.53%	21.54%	23.19%
Barbados	5.42%	5.71%	3.07%	5.41%	5.29%	5.03%	4.77%	5.71%	5.99%	6.47%	6.71%	7.41%	7.11%	5.93%	2.92%	6.56%	6.97%	7.46%	6.58%	5.43%	7.38%	7.07%	7.51%	6.61%	6.20%
Belarus	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Belgium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Belize	9.82%	21.50%	10.74%	8.65%	15.83%	14.15%	17.23%	18.39%	18.57%	20.64%	20.88%	11.88%	9.23%	-0.24%	-17.95%	13.47%	8.16%	4.03%	7.46%	-2.73%	10.24%	9.62%	7.88%	8.58%	12.39%
Benin	16.88%	16.63%	16.31%	15.67%	15.41%	15.35%	15.82%	15.61%	14.43%	13.93%	14.55%	14.57%	14.21%	13.21%	13.60%	15.85%	15.71%	16.45%	17.07%	16.06%	15.44%	15.62%	16.18%	16.56%	15.06%
Bermuda	5.57%	5.26%	5.51%	4.95%	4.98%	4.70%	3.94%	4.08%	3.93%	3.76%	3.81%	4.18%	4.52%	4.99%	4.39%	4.16%	3.57%	3.79%	3.76%	3.60%	3.62%	3.50%	3.57%	3.64%	3.49%
Bhutan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	96.91%	93.64%	91.70%	84.55%	85.64%	74.49%
Bolivia	14.50%	14.51%	14.63%	13.10%	13.43%	12.04%	11.68%	14.41%	13.76%	14.35%	13.62%	13.38%	11.96%	13.48%	14.36%	12.37%	11.57%	12.60%	12.04%	12.90%	15.18%	15.06%	12.85%	15.32%	17.30%
Bosnia and Herzegovina	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Botswana	4.60%	5.52%	3.65%	-2.17%	0.06%	-0.64%	2.99%	4.40%	5.53%	3.07%	3.82%	1.86%	-6.65%	-4.98%	-4.79%	-2.03%	0.23%	3.56%	-1.51%	6.41%	2.11%	1.43%	3.29%	3.78%	2.24%
Brazil	5.25%	6.00%	5.80%	6.31%	6.59%	5.93%	6.75%	6.00%	5.41%	5.01%	4.79%	3.90%	2.94%	2.97%	3.23%	2.87%	2.13%	2.66%	3.07%	2.77%	3.06%	3.65%	3.42%	3.35%	3.93%
Brunei Darussalam	--	--	--	--	--	--	--	--	--	--	--	--	--	1.62%	1.85%	1.49%	1.39%	1.40%	1.29%	1.67%	2.28%	2.09%	2.05%	2.07%	1.84%
Bulgaria	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	15.92%	19.92%	18.57%	19.01%	20.73%	19.58%
Burkina Faso	32.14%	34.12%	35.49%	38.97%	33.36%	38.23%	35.19%	35.12%	34.19%	35.92%	33.00%	39.98%	39.48%	40.76%	35.05%	29.33%	31.81%	34.98%	32.72%	31.22%	34.80%	32.14%	30.43%	32.78%	37.92%
Burundi	231.90%	214.35%	215.24%	204.51%	206.57%	201.42%	180.86%	185.48%	189.16%	150.03%	153.80%	147.69%	153.77%	147.46%	159.88%	139.05%	120.42%	127.67%	116.86%	126.36%	118.96%	117.02%	111.60%	110.79%	111.26%
Cabo Verde	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	91.47%	67.39%	64.71%	52.63%	56.01%	52.39%
Cambodia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cameroon	22.49%	22.09%	20.78%	22.28%	21.56%	21.00%	25.40%	23.25%	20.00%	24.10%	26.35%	27.53%	23.31%	19.21%	19.01%	17.53%	12.23%	8.31%	9.13%	10.13%	13.46%	14.74%	13.50%	11.07%	11.50%
Canada	3.76%	4.21%	4.07%	3.22%	3.47%	3.22%	3.42%	3.61%	3.76%	3.26%	3.20%	2.96%	2.68%	2.31%	2.51%	2.66%	2.82%	2.83%	2.49%	2.10%	2.15%	2.17%	1.98%	2.05%	2.39%
Central African Republic	16.14%	17.03%	18.50%	14.61%	18.21%	15.80%	18.03%	18.29%	17.77%	17.32%	17.70%	18.09%	21.77%	18.67%	21.16%	18.14%	13.53%	16.26%	18.76%	18.66%	23.71%	18.96%	22.94%	18.91%	17.40%
Chad	10.45%	10.54%	12.17%	11.51%	12.18%	13.31%	13.74%	14.06%	12.61%	11.93%	11.43%	11.29%	12.96%	12.84%	11.23%	8.02%	7.53%	7.51%	9.26%	7.29%	6.85%	9.54%	7.59%	7.84%	8.11%
Chile	10.39%	10.07%	10.28%	9.90%	9.60%	9.86%	9.16%	9.17%	8.73%	8.67%	8.10%	8.74%	8.82%	12.81%	9.52%	10.46%	8.09%	8.26%	8.42%	8.48%	8.22%	7.88%	7.76%	6.86%	5.31%
China	107.75%	119.97%	117.72%	110.75%	101.23%	96.96%	103.52%	106.64%	91.52%	83.11%	81.02%	77.17%	78.38%	77.72%	72.53%	73.63%	71.19%	69.87%	69.29%	65.12%	64.91%	64.79%	61.78%	57.59%	49.89%
Colombia	5.09%	5.11%	5.44%	4.32%	5.06%	5.38%	5.46%	5.34%	5.33%	4.32%	5.82%	5.06%	4.05%	4.43%	4.47%	4.03%	1.86%	0.81%	1.22%	0.89%	4.34%	4.17%	4.63%	3.99%	4.09%
Comoros	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	12.27%	8.38%	4.18%	4.61%	11.29%	3.27%
Congo	20.02%	20.03%	22.00%	21.68%	23.59%	21.31%	23.37%	22.97%	18.76%	17.25%	17.58%	14.76%	14.46%	13.27%	13.28%	13.45%	14.04%	14.60%	14.55%	13.12%	10.72%	10.26%	9.32%	9.08%	9.62%
Costa Rica	0.40%	-0.23%	0.29%	-0.25%	1.67%	0.41%	0.75%	1.85%	1.79%	1.80%	4.99%	1.59%	0.54%	0.00%	-0.28%	-1.83%	-8.11%	-6.29%	-5.37%	-2.66%	-1.82%	-0.73%	2.59%	0.07%	1.18%
Côte d Ivoire	6.63%	10.88%	4.85%	1.89%	7.17%	5.01%	6.55%	1.52%	3.56%	2.74%	4.80%	5.74%	4.20%	-1.91%	1.67%	-7.47%	-13.03%	-11.59%	-7.92%	-7.38%	-0.58%	3.23%	5.38%	0.14%	-3.47%
Croatia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cuba	--	--	--	--	--	--	--	--	--	-6.38%	-3.74%	-2.20%	-8.16%	-22.97%	-32.02%	-25.59%	-20.79%	-25.19%	-25.01%	-26.11%	-17.39%	-16.66%	-17.34%	-13.68%	-14.10%
Cyprus	--	--	--	--	--	--	--	--	--	--	--	--	--	--	14.40%	11.28%	8.58%	9.41%	8.95%	9.35%	9.67%	8.31%	9.62%	8.23%	8.32%

Table 6. PCE Ratios FAO Dataset (Cont.) - Deleted Values Shaded

Country	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Afghanistan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	17.15%	17.82%	16.71%	18.42%	17.33%	15.87%	20.92%	14.25%	13.01%	15.47%
Albania	15.95%	15.49%	16.31%	16.46%	19.09%	25.46%	33.53%	34.64%	30.70%	28.74%	28.84%	27.85%	26.35%	25.21%	22.92%	21.93%	22.12%	22.18%	22.51%	20.96%	21.09%	21.09%	20.94%	20.07%	20.50%	20.92%
Algeria	11.48%	11.68%	11.44%	14.11%	11.94%	12.80%	13.24%	13.15%	14.49%	14.03%	14.12%	12.47%	12.87%	12.32%	11.82%	11.82%	11.77%	12.19%	13.06%	12.46%	12.60%	12.56%	14.51%	14.48%	14.31%	17.46%
Angola	4.30%	4.86%	4.94%	5.39%	5.42%	5.11%	5.87%	6.73%	6.79%	6.43%	6.31%	5.95%	5.80%	4.93%	5.07%	5.40%	5.86%	6.20%	6.43%	6.15%	5.55%	5.09%	5.81%	5.55%	5.65%	6.77%
Antigua and Barbuda	9.74%	9.30%	9.41%	8.71%	8.78%	7.80%	8.16%	7.20%	6.61%	6.87%	6.35%	6.47%	5.83%	5.07%	4.96%	4.56%	4.66%	4.38%	4.18%	8.06%	5.00%	5.30%	5.81%	6.74%	7.10%	9.28%
Argentina	8.81%	8.72%	8.22%	7.64%	8.57%	8.42%	7.47%	7.29%	7.82%	7.44%	7.07%	5.41%	6.46%	7.94%	7.65%	8.38%	8.76%	8.25%	6.89%	7.16%	6.26%	5.37%	2.69%	2.50%	3.79%	1.30%
Armenia	--	--	--	--	--	--	40.03%	36.01%	38.53%	39.41%	41.28%	34.27%	32.91%	30.41%	27.64%	26.74%	23.12%	20.99%	22.40%	21.53%	19.13%	20.51%	20.74%	22.76%	21.07%	22.72%
Australia	2.08%	2.24%	2.21%	1.90%	1.76%	1.90%	2.30%	2.20%	1.65%	2.15%	1.71%	1.67%	2.19%	2.36%	2.14%	2.33%	1.73%	2.38%	1.52%	1.99%	1.33%	1.79%	1.61%	1.77%	1.44%	1.44%
Austria	3.41%	3.42%	3.38%	3.12%	3.13%	3.07%	3.00%	2.93%	3.01%	2.99%	2.79%	2.78%	2.65%	2.61%	2.32%	2.33%	2.20%	2.23%	2.27%	2.19%	2.03%	2.09%	2.01%	2.12%	2.05%	2.20%
Azerbaijan	--	--	--	--	--	--	15.39%	16.23%	18.20%	21.72%	24.92%	20.22%	19.54%	19.14%	18.93%	19.00%	18.05%	17.35%	16.43%	13.08%	10.34%	8.89%	8.93%	8.13%	8.16%	8.49%
Bahamas	5.21%	5.36%	5.23%	4.84%	4.52%	5.02%	4.50%	4.16%	4.30%	4.59%	4.73%	4.40%	4.22%	4.15%	5.25%	4.46%	3.10%	2.58%	2.95%	4.33%	4.60%	4.74%	5.04%	5.24%	4.21%	4.12%
Bahrain	5.14%	4.81%	4.49%	4.54%	4.40%	3.66%	3.92%	3.64%	3.53%	3.25%	2.82%	3.28%	1.89%	1.77%	2.97%	3.53%	3.45%	2.92%	2.72%	2.97%	2.12%	2.31%	2.69%	2.45%	3.15%	3.31%
Bangladesh	20.33%	20.13%	21.03%	21.48%	20.20%	19.56%	18.87%	17.95%	16.49%	17.44%	17.34%	16.51%	16.57%	19.37%	17.70%	16.35%	16.28%	16.48%	15.57%	15.99%	15.28%	15.80%	16.16%	16.08%	16.77%	16.81%
Barbados	5.84%	5.93%	5.73%	6.29%	5.93%	6.28%	5.50%	5.63%	5.57%	6.05%	5.15%	5.37%	3.78%	5.48%	4.58%	5.43%	5.37%	5.99%	5.10%	6.11%	5.74%	5.89%	6.32%	6.16%	6.68%	6.95%
Belarus	--	--	--	--	--	--	25.28%	26.59%	24.66%	27.33%	27.85%	23.63%	20.96%	19.42%	19.78%	17.90%	17.45%	16.68%	16.77%	14.88%	14.67%	13.67%	13.85%	12.84%	11.11%	9.63%
Belgium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.53%	1.38%	1.44%	1.40%	1.18%	0.97%	0.73%	0.73%	0.63%	0.77%	0.53%	0.58%
Belize	8.14%	7.72%	6.79%	2.93%	2.47%	4.18%	7.01%	8.92%	6.16%	4.61%	5.44%	6.19%	6.58%	4.85%	6.59%	7.63%	9.22%	8.82%	8.37%	8.50%	7.32%	7.94%	8.34%	7.76%	9.39%	8.01%
Benin	15.53%	14.69%	17.14%	17.61%	18.82%	19.82%	22.35%	20.47%	19.37%	19.46%	18.85%	18.63%	18.66%	18.80%	17.48%	16.85%	17.81%	18.73%	19.09%	19.02%	21.06%	19.63%	22.41%	18.41%	16.39%	21.92%
Bermuda	3.23%	3.05%	2.81%	2.66%	2.51%	2.40%	2.99%	2.77%	4.19%	2.53%	2.37%	2.21%	2.06%	1.63%	1.48%	1.33%	1.35%	1.29%	1.26%	1.28%	1.65%	1.73%	2.01%	2.00%	1.85%	2.01%
Bhutan	68.22%	59.28%	45.12%	43.64%	45.73%	46.25%	43.84%	45.56%	44.66%	41.83%	43.02%	42.93%	39.45%	38.57%	24.83%	23.06%	20.05%	21.26%	24.44%	27.70%	25.84%	22.13%	19.85%	18.00%	18.95%	19.08%
Bolivia	16.31%	17.72%	16.31%	15.52%	13.43%	15.63%	15.10%	15.38%	14.65%	16.30%	14.94%	13.92%	13.86%	14.20%	14.80%	14.17%	14.24%	14.80%	12.41%	13.92%	13.47%	13.48%	13.05%	13.08%	12.49%	12.94%
Bosnia and Herzegovina	--	--	--	--	--	--	--	--	48.83%	40.31%	23.97%	21.23%	17.86%	14.84%	12.71%	14.22%	14.52%	13.10%	16.53%	17.12%	15.79%	15.53%	17.03%	16.30%	15.32%	16.37%
Botswana	1.42%	2.93%	3.46%	2.29%	3.49%	3.56%	4.29%	3.76%	3.48%	4.28%	4.23%	3.62%	3.33%	3.29%	3.35%	2.94%	2.75%	2.99%	2.10%	1.98%	2.18%	2.35%	2.80%	3.02%	2.72%	3.56%
Brazil	3.99%	4.04%	4.19%	4.56%	4.61%	4.98%	5.23%	5.11%	5.16%	5.43%	5.03%	5.14%	5.30%	5.59%	5.76%	5.71%	5.94%	6.31%	5.67%	5.25%	5.08%	4.87%	4.71%	4.78%	4.21%	3.75%
Brunei Darussalam	1.98%	2.30%	2.48%	2.28%	2.30%	2.26%	2.26%	2.28%	2.59%	2.43%	2.41%	2.82%	2.74%	2.06%	2.04%	2.02%	2.31%	2.43%	2.15%	2.18%	2.09%	1.88%	2.48%	2.48%	2.66%	2.84%
Bulgaria	20.52%	18.65%	17.17%	18.99%	17.37%	19.37%	17.62%	15.76%	14.85%	15.14%	14.38%	16.34%	15.19%	15.31%	13.86%	13.08%	10.43%	8.45%	9.87%	7.65%	7.76%	6.69%	7.62%	7.78%	7.21%	7.20%
Burkina Faso	36.95%	34.76%	38.87%	36.67%	35.30%	41.19%	41.23%	40.83%	39.76%	38.76%	39.73%	32.98%	34.56%	34.32%	28.78%	32.76%	31.15%	32.29%	27.45%	29.84%	28.84%	24.00%	29.25%	26.26%	28.08%	23.99%
Burundi	106.15%	115.58%	107.80%	108.98%	111.90%	108.13%	111.60%	118.32%	103.57%	118.39%	135.98%	138.74%	121.32%	131.80%	130.27%	138.08%	137.80%	143.40%	132.70%	129.14%	125.03%	123.22%	118.45%	120.80%	115.85%	111.39%
Cabo Verde	66.27%	84.32%	79.67%	77.82%	74.21%	67.60%	74.11%	63.79%	50.73%	52.17%	43.85%	41.42%	38.40%	37.87%	30.31%	32.06%	29.28%	31.68%	30.45%	29.76%	29.51%	28.56%	29.48%	28.77%	28.08%	28.71%
Cambodia	--	--	--	--	--	--	--	47.92%	43.22%	47.04%	45.77%	44.37%	42.92%	42.71%	39.55%	36.97%	34.29%	35.92%	33.10%	36.82%	40.81%	37.75%	41.22%	43.11%	43.57%	49.12%
Cameroon	11.02%	11.09%	12.69%	13.64%	16.02%	17.85%	20.03%	21.71%	21.59%	20.93%	20.49%	20.39%	21.91%	21.66%	22.10%	21.86%	21.57%	21.14%	21.71%	24.85%	27.08%	29.01%	29.34%	30.16%	29.95%	31.74%
Canada	2.63%	2.42%	1.97%	2.35%	2.40%	2.41%	2.25%	2.52%	2.46%	2.32%	2.19%	2.18%	2.32%	2.34%	2.10%	1.86%	1.89%	2.02%	1.96%	2.01%	1.93%	1.82%	1.76%	2.02%	1.98%	1.90%
Central African Republic	20.23%	21.03%	22.46%	20.71%	25.17%	26.47%	28.73%	29.29%	28.75%	27.15%	32.11%	29.76%	31.16%	28.23%	32.42%	32.30%	31.31%	32.96%	33.07%	33.13%	31.60%	30.80%	30.74%	29.62%	27.54%	27.71%
Chad	11.13%	11.29%	11.40%	10.72%	11.99%	12.30%	11.69%	12.39%	11.19%	12.62%	13.51%	12.83%	14.74%	13.47%	12.72%	13.69%	12.60%	12.18%	8.70%	8.42%	8.26%	7.75%	8.36%	8.35%	7.77%	7.34%
Chile	4.54%	4.76%	4.74%	4.37%	4.25%	4.16%	3.90%	4.05%	4.06%	3.71%	3.49%	3.63%	3.46%	3.35%	3.49%	3.28%	2.99%	3.16%	2.99%	2.91%	3.04%	2.68%	2.67%	2.05%	2.14%	2.16%
China	47.44%	44.88%	41.28%	41.07%	42.87%	40.16%	36.81%	34.50%	32.16%	31.80%	30.89%	28.60%	28.09%	26.94%	25.52%	24.02%	22.90%	21.05%	20.50%	18.95%	17.29%	15.75%	15.36%	14.41%	13.43%	12.71%
Colombia	1.56%	4.37%	4.77%	5.22%	5.48%	5.33%	5.37%	5.83%	5.01%	5.50%	5.92%	5.07%	5.18%	6.12%	6.22%	6.75%	6.72%	6.76%	6.52%	5.80%	5.91%	5.88%	6.06%	5.60%	5.54%	5.37%
Comoros	3.99%	7.73%	6.23%	9.19%	10.30%	7.79%	9.71%	7.58%	12.99%	15.63%	15.24%	14.82%	14.60%	14.63%	10.73%	10.38%	12.14%	7.49%	8.74%	13.61%	13.34%	16.14%	17.67%	16.74%	19.79%	15.26%
Congo	10.23%	9.78%	10.72%	10.17%	9.84%	10.61%	11.19%	11.25%	10.82%	11.53%	11.78%	11.07%	11.43%	11.29%	11.27%	10.71%	10.95%	11.73%	12.55%	10.74%	11.18%	11.82%	11.71%	12.43%	10.83%	13.82%
Costa Rica	-0.74%	0.89%	1.93%	4.71%	6.18%	5.29%	6.03%	5.67%	4.36%	1.47%	3.04%	2.81%	2.55%	4.45%	5.22%	6.46%	6.36%	5.66%	5.38%	5.27%	6.55%	5.25%	4.77%	4.82%	4.76%	5.65%
Côte d Ivoire	-5.44%	1.08%	6.73%	6.12%	10.53%	11.61%	13.60%	12.84%	13.13%	10.07%	7.92%	8.54%	7.77%	8.86%	13.21%	11.82%	6.85%	7.03%	9.82%	11.05%	12.64%	11.14%	10.17%	4.72%	4.65%	5.50%
Croatia	--	--	--	--	--	--	--	--	--	7.60%	7.22%	6.75%	6.27%	6.82%	5.83%	6.35%	6.39%	5.26%	5.89%	4.92%	5.07%	5.15%	5.80%	5.79%	5.40%	5.82%
Cuba	-14.60%	-11.18%	-10.48%	-8.45%	-9.87%	-2.80%	0.15%	1.95%	1.78%	2.14%	1.66%	1.99%	2.77%	3.64%	3.61%	3.10%	3.63%	4.19%	4.33%	4.64%	3.60%	4.17%	5.19%	4.02%	3.58%	3.96%
Cyprus	7.54%	7.16%	7.75%	7.59%	6.66%	6.44%	7.06%	7.22%	6.66%	6.83%	7.31%	6.93%	6.78%	6.73%	6.45%	6.22%	6.34%	6.13%	6.33%	6.11%	5.89%	6.21%	6.67%	6.04%	6.03%	6.18%

Table 6. PCE Ratios FAO Dataset - Deleted Values Shaded

Country	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Czech Republic	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dem. Rep. Congo	15.56%	13.29%	13.24%	12.72%	14.04%	13.30%	12.58%	12.31%	12.06%	12.49%	11.72%	11.69%	11.89%	12.82%	12.59%	12.69%	10.70%	11.69%	13.50%	13.46%	16.16%	15.13%	15.32%	14.07%	15.64%
Denmark	2.96%	2.96%	2.42%	2.36%	2.12%	2.09%	2.20%	2.44%	2.08%	2.12%	2.02%	1.68%	0.94%	1.02%	0.19%	1.12%	1.57%	0.70%	0.62%	0.46%	0.96%	1.19%	1.43%	1.77%	1.64%
Dominica	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8.58%	8.28%	11.34%	15.84%	10.83%	9.10%	7.41%	8.96%	6.75%
Dominican Republic	7.75%	4.44%	4.79%	6.70%	11.79%	10.92%	9.14%	9.70%	10.04%	8.24%	8.24%	5.83%	5.32%	2.26%	-5.19%	4.22%	1.59%	5.41%	4.45%	5.77%	2.96%	6.16%	7.44%	6.85%	7.53%
Ecuador	7.57%	6.56%	6.71%	8.12%	7.28%	6.72%	6.28%	7.13%	7.65%	7.54%	6.86%	5.83%	4.95%	3.80%	4.68%	2.89%	0.52%	-0.39%	0.21%	2.98%	4.15%	6.56%	6.54%	6.27%	5.67%
Egypt	31.01%	35.26%	33.85%	30.78%	28.77%	30.56%	29.22%	26.90%	22.98%	22.73%	25.18%	24.79%	24.24%	37.06%	36.35%	30.47%	26.06%	28.83%	25.16%	27.18%	33.08%	28.11%	26.41%	26.49%	24.00%
El Salvador	--	--	--	--	0.52%	1.10%	0.26%	0.87%	1.75%	0.66%	1.72%	0.03%	0.60%	-0.33%	0.55%	-3.87%	-7.55%	-1.58%	-4.03%	-4.96%	-0.05%	1.07%	0.97%	3.43%	1.35%
Equatorial Guinea	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4.02%
Eritrea	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Estonia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ethiopia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fiji	18.47%	17.58%	10.09%	9.83%	19.31%	20.76%	17.22%	17.52%	16.01%	15.74%	14.85%	12.24%	14.71%	6.23%	1.18%	8.67%	6.90%	8.59%	5.78%	-2.74%	6.44%	8.07%	8.66%	11.44%	12.42%
Finland	6.01%	5.84%	6.35%	5.84%	5.48%	5.24%	5.07%	4.91%	4.57%	4.49%	3.94%	3.76%	3.73%	3.86%	4.18%	4.00%	3.74%	3.83%	3.77%	3.86%	3.03%	3.38%	3.03%	2.87%	2.77%
France	8.54%	9.45%	8.32%	7.82%	7.81%	7.07%	7.07%	6.89%	5.94%	6.19%	5.51%	4.96%	5.16%	4.56%	4.62%	4.65%	4.50%	4.49%	4.60%	4.08%	3.78%	4.33%	4.05%	4.12%	4.05%
Gabon	4.45%	4.44%	4.36%	4.07%	4.00%	3.82%	3.70%	3.70%	3.39%	3.16%	2.89%	2.83%	2.65%	2.63%	2.64%	2.00%	2.56%	3.69%	3.48%	3.64%	3.70%	4.02%	3.53%	3.30%	3.53%
Gambia	--	--	--	--	--	54.49%	48.74%	51.14%	49.72%	49.94%	52.79%	48.18%	48.49%	46.12%	40.79%	45.49%	33.39%	46.47%	37.11%	42.39%	48.80%	50.28%	34.76%	37.37%	36.23%
Georgia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Germany	--	--	--	--	--	--	--	--	--	4.43%	4.27%	4.24%	4.33%	4.16%	4.19%	4.15%	4.17%	4.19%	4.02%	3.82%	3.44%	3.54%	3.40%	3.41%	3.25%
Ghana	30.10%	31.57%	28.38%	32.15%	27.43%	41.02%	35.85%	35.46%	33.21%	28.28%	37.75%	34.69%	31.07%	29.89%	23.84%	23.56%	7.99%	8.62%	12.76%	17.23%	33.07%	34.28%	43.11%	49.70%	45.36%
Greece	17.61%	13.47%	15.01%	13.02%	13.14%	12.81%	12.54%	11.58%	10.69%	10.88%	10.03%	9.56%	9.24%	10.74%	10.38%	8.96%	8.72%	8.72%	8.29%	9.22%	9.59%	10.12%	9.72%	9.56%	10.17%
Grenada	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.27%	1.01%	-0.92%	3.96%	5.25%	6.40%	4.30%	6.19%	5.61%
Guatemala	-3.61%	-3.02%	-3.65%	-2.88%	-3.80%	-4.68%	-2.03%	-1.96%	-2.49%	-3.13%	-2.53%	-2.66%	-3.91%	-4.39%	-4.35%	-6.01%	-10.88%	-7.11%	-5.71%	-6.52%	-3.41%	-3.34%	-4.03%	-3.67%	-3.38%
Guinea	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Guinea-Bissau	--	--	--	--	--	--	--	--	--	18.12%	20.90%	18.47%	24.67%	25.96%	19.99%	17.74%	17.71%	24.15%	17.85%	18.18%	21.10%	15.98%	15.67%	13.87%	12.44%
Guyana	-41.27%	-40.64%	-56.66%	-36.82%	-25.74%	-25.61%	-27.63%	-24.12%	-27.47%	-20.62%	-25.18%	-27.29%	-14.34%	-60.22%	-73.91%	-30.95%	-26.14%	-34.21%	-27.91%	-35.78%	-29.45%	-25.08%	-20.51%	-23.87%	-19.23%
Haiti	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Honduras	12.12%	10.94%	11.33%	11.01%	4.07%	4.45%	7.08%	7.23%	10.62%	10.35%	9.25%	11.43%	9.31%	12.64%	10.01%	3.27%	-1.10%	-1.64%	-1.35%	-1.72%	2.73%	3.31%	3.97%	3.22%	2.03%
Hungary	18.41%	18.28%	17.41%	16.42%	11.24%	11.08%	10.14%	10.36%	9.55%	8.68%	9.26%	8.16%	6.82%	7.55%	7.06%	6.70%	7.13%	7.06%	6.17%	6.83%	6.32%	6.58%	6.95%	7.50%	7.26%
Iceland	9.16%	8.97%	8.28%	7.94%	7.87%	6.84%	7.21%	7.24%	6.61%	6.58%	5.94%	5.88%	6.03%	6.43%	6.38%	5.86%	5.46%	5.31%	5.07%	4.82%	4.49%	4.25%	4.24%	4.02%	3.97%
India	43.02%	41.31%	39.73%	38.29%	38.18%	38.60%	38.02%	38.27%	36.55%	36.08%	35.92%	34.40%	35.97%	34.61%	35.87%	34.96%	32.87%	32.49%	32.60%	31.66%	32.33%	31.30%	33.04%	32.57%	31.42%
Indonesia	29.74%	31.82%	30.13%	31.65%	28.81%	29.08%	27.96%	29.66%	27.94%	28.31%	26.44%	24.82%	26.48%	24.74%	22.99%	21.64%	19.56%	19.66%	18.42%	18.75%	19.49%	18.46%	18.22%	17.27%	16.99%
Iran	--	--	--	--	13.17%	12.19%	10.65%	10.52%	9.13%	8.68%	8.24%	7.75%	7.88%	9.82%	11.37%	8.81%	9.30%	9.40%	10.56%	12.82%	15.76%	14.30%	12.48%	12.86%	12.28%
Iraq	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ireland	--	--	--	--	--	--	--	--	--	6.90%	6.72%	5.37%	3.96%	4.91%	3.42%	3.77%	3.76%	2.35%	2.19%	2.44%	3.78%	4.63%	5.09%	5.24%	5.11%
Israel	6.83%	6.45%	5.78%	6.94%	5.80%	6.50%	5.89%	5.74%	5.03%	5.37%	5.10%	4.84%	5.61%	6.38%	6.01%	5.27%	5.16%	4.70%	4.92%	4.55%	4.39%	4.53%	4.56%	4.52%	4.00%
Italy	6.98%	6.49%	6.75%	6.67%	6.76%	6.67%	6.59%	6.02%	5.97%	5.72%	5.79%	5.47%	5.97%	5.50%	5.70%	5.09%	5.11%	5.15%	5.09%	5.18%	4.65%	4.55%	4.93%	4.33%	4.36%
Japan	10.93%	10.38%	9.81%	9.01%	8.53%	7.78%	7.39%	6.73%	5.81%	5.85%	5.37%	5.33%	5.12%	5.50%	5.46%	4.99%	5.11%	4.85%	4.76%	4.41%	4.23%	4.07%	3.94%	3.93%	3.69%
Jordan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	26.56%	27.60%	24.62%	24.39%	21.17%	19.05%	19.01%	19.94%	19.54%	18.25%	17.65%
Kazakhstan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Kenya	47.32%	43.37%	38.66%	37.05%	39.65%	31.62%	32.23%	32.38%	29.39%	32.00%	29.39%	24.31%	21.88%	22.49%	23.02%	18.73%	5.47%	13.40%	15.47%	16.71%	17.09%	21.83%	20.28%	15.62%	20.69%
Kiribati	--	--	--	--	--	--	--	--	--	16.68%	18.86%	16.18%	17.24%	14.85%	10.56%	15.15%	15.39%	17.27%	19.81%	36.17%	37.35%	31.75%	24.81%	30.76%	30.26%
Kuwait	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Kyrgyzstan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lao	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	45.00%	42.43%

Table 6. PCE Ratios FAO Dataset (Cont.) - Deleted Values Shaded

Country	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Czech Republic	--	--	--	--	--	--	--	6.34%	5.72%	5.62%	5.83%	5.57%	5.51%	5.44%	4.85%	4.86%	4.73%	4.23%	4.71%	4.17%	3.83%	3.88%	3.95%	4.08%	3.86%	3.85%
Dem. Rep. Congo	12.96%	15.23%	16.10%	16.61%	19.14%	21.51%	25.00%	29.27%	30.45%	26.12%	26.30%	27.50%	27.30%	28.15%	30.36%	30.72%	30.18%	29.43%	29.04%	27.10%	27.89%	25.59%	24.91%	25.70%	23.72%	23.82%
Denmark	1.34%	0.98%	1.02%	0.98%	0.52%	0.55%	0.31%	0.98%	0.53%	0.44%	0.51%	0.67%	0.94%	1.13%	1.17%	1.07%	1.17%	1.08%	0.88%	0.99%	0.73%	0.81%	0.92%	0.95%	1.06%	1.03%
Dominica	1.40%	-0.65%	-1.25%	5.03%	3.27%	2.44%	2.09%	3.14%	4.74%	6.70%	8.48%	7.46%	6.07%	5.35%	7.79%	7.71%	8.18%	8.53%	8.16%	8.48%	7.84%	9.66%	9.23%	9.32%	9.30%	8.83%
Dominican Republic	7.46%	8.57%	8.27%	8.85%	8.23%	8.70%	8.90%	8.45%	7.65%	8.13%	7.84%	7.45%	6.89%	7.05%	6.84%	7.44%	7.45%	6.90%	6.85%	6.96%	6.94%	6.80%	6.73%	6.39%	6.12%	6.28%
Ecuador	4.52%	5.70%	6.45%	6.82%	6.70%	5.93%	7.05%	7.69%	6.63%	6.93%	7.37%	7.83%	7.91%	8.52%	9.89%	9.71%	9.25%	8.57%	9.07%	8.33%	8.33%	8.74%	8.53%	7.38%	8.17%	7.44%
Egypt	22.94%	20.76%	21.54%	20.66%	22.49%	21.11%	20.94%	20.39%	20.81%	21.79%	22.60%	21.92%	21.22%	21.05%	20.33%	18.81%	19.60%	18.98%	18.15%	18.84%	19.06%	19.51%	19.58%	17.29%	17.78%	18.74%
El Salvador	0.39%	3.28%	3.60%	6.60%	5.80%	7.41%	8.17%	6.61%	6.06%	5.22%	6.36%	4.93%	5.93%	6.50%	7.08%	8.01%	8.37%	8.44%	8.86%	8.48%	8.82%	8.86%	9.69%	9.37%	8.67%	7.90%
Equatorial Guinea	5.57%	6.77%	7.96%	8.63%	11.13%	11.93%	10.83%	10.91%	8.34%	8.36%	6.07%	4.01%	2.82%	2.35%	1.90%	1.28%	1.20%	1.15%	0.90%	0.89%	0.98%	0.89%	1.03%	1.08%	1.12%	1.37%
Eritrea	--	--	--	--	--	--	--	53.64%	61.89%	51.16%	49.42%	46.48%	63.17%	51.28%	48.20%	47.44%	37.24%	48.21%	50.82%	59.04%	54.69%	62.91%	50.75%	56.64%	54.79%	55.87%
Estonia	--	--	--	--	--	--	--	10.27%	9.94%	10.26%	11.96%	9.68%	9.37%	8.14%	7.72%	7.10%	6.30%	6.81%	6.55%	5.63%	5.56%	5.28%	5.50%	6.58%	5.90%	5.43%
Ethiopia	--	--	--	--	--	--	--	34.77%	34.30%	35.09%	37.21%	34.09%	32.02%	34.99%	35.19%	37.83%	40.15%	47.29%	40.20%	39.36%	36.27%	32.29%	34.02%	33.83%	32.37%	28.79%
Fiji	11.18%	6.84%	8.64%	9.72%	11.28%	8.53%	11.07%	12.30%	11.14%	10.23%	8.88%	12.24%	12.26%	10.84%	12.54%	11.77%	12.31%	12.17%	13.02%	13.22%	13.64%	14.62%	14.65%	14.16%	15.96%	16.66%
Finland	2.95%	2.71%	2.76%	2.69%	2.61%	2.59%	2.57%	2.43%	2.48%	2.43%	2.48%	2.40%	2.22%	2.25%	2.08%	1.97%	2.03%	2.07%	2.01%	2.08%	1.93%	1.97%	2.12%	2.41%	2.20%	2.30%
France	4.03%	3.97%	3.46%	3.25%	3.11%	3.04%	3.14%	2.89%	2.86%	2.75%	2.85%	2.82%	2.79%	2.80%	2.72%	2.63%	2.67%	2.40%	2.55%	2.40%	2.27%	2.15%	2.15%	2.40%	2.25%	2.15%
Gabon	3.32%	4.11%	3.71%	3.25%	2.97%	3.29%	3.64%	3.37%	2.75%	3.16%	3.08%	2.87%	3.01%	3.05%	3.17%	3.08%	2.77%	2.42%	3.32%	3.48%	3.51%	3.84%	4.44%	4.50%	4.46%	4.91%
Gambia	39.36%	37.87%	38.18%	40.16%	36.63%	41.73%	36.87%	35.80%	34.65%	36.36%	30.21%	33.32%	29.50%	34.29%	32.54%	28.68%	24.70%	25.62%	37.59%	37.64%	36.99%	26.40%	26.80%	27.05%	33.57%	22.17%
Georgia	--	--	--	--	--	--	24.49%	32.56%	33.87%	44.87%	43.41%	39.07%	33.00%	32.43%	27.42%	27.70%	26.35%	26.37%	25.31%	24.70%	16.93%	18.40%	18.13%	14.67%	14.91%	16.01%
Germany	3.38%	3.27%	3.14%	2.92%	2.86%	2.61%	2.51%	2.24%	2.27%	2.32%	2.33%	2.18%	2.14%	2.09%	1.95%	1.89%	1.86%	1.84%	1.89%	1.80%	1.68%	1.63%	1.61%	1.71%	1.58%	1.60%
Ghana	43.59%	44.13%	45.88%	50.61%	41.01%	61.73%	60.20%	62.35%	57.61%	62.29%	57.27%	58.27%	60.96%	63.04%	60.56%	61.78%	64.95%	59.44%	58.22%	59.57%	53.82%	50.61%	54.23%	55.78%	55.40%	43.27%
Greece	9.32%	9.91%	10.06%	9.87%	8.68%	9.65%	9.52%	9.47%	9.87%	10.16%	9.79%	9.17%	8.73%	9.11%	8.60%	8.06%	7.95%	7.18%	7.51%	7.44%	6.86%	6.61%	6.88%	6.67%	6.31%	6.96%
Grenada	1.85%	0.32%	1.38%	4.19%	5.88%	6.40%	6.53%	8.88%	8.47%	8.69%	10.33%	7.22%	6.74%	4.13%	3.83%	2.98%	4.94%	4.12%	7.19%	5.78%	6.76%	6.52%	6.90%	8.00%	7.79%	7.33%
Guatemala	-4.42%	-2.12%	-2.65%	-1.69%	-0.90%	-0.43%	-0.02%	0.34%	0.00%	-1.51%	-0.48%	-1.03%	-1.03%	-0.38%	-0.42%	1.61%	2.02%	1.98%	2.30%	1.54%	2.06%	1.51%	1.65%	0.39%	0.05%	-0.12%
Guinea	52.21%	51.71%	51.34%	51.74%	51.81%	52.80%	54.90%	53.94%	55.38%	54.89%	53.39%	52.20%	49.13%	48.92%	49.32%	48.14%	48.71%	51.55%	52.15%	52.99%	53.70%	56.37%	55.30%	54.85%	57.29%	55.98%
Guinea-Bissau	13.92%	15.89%	15.33%	15.17%	12.71%	12.30%	17.04%	13.70%	9.51%	11.60%	10.57%	7.23%	12.28%	8.98%	11.56%	10.57%	12.13%	13.41%	13.55%	8.06%	15.54%	13.73%	8.10%	13.03%	18.09%	-0.40%
Guyana	-23.48%	-25.29%	-17.21%	-21.15%	-17.03%	-22.74%	-29.40%	-22.53%	-24.71%	-24.53%	-29.33%	-20.09%	-17.07%	-28.56%	-13.04%	-8.16%	-8.34%	-13.45%	-15.49%	-8.19%	-11.71%	-13.99%	-12.99%	-9.89%	-14.33%	-13.72%
Haiti	--	--	--	--	--	--	--	--	--	--	--	--	14.74%	14.01%	13.41%	13.01%	14.25%	14.35%	15.74%	15.87%	17.81%	17.44%	19.99%	18.45%	23.98%	18.54%
Honduras	-0.58%	2.77%	3.50%	4.32%	5.32%	8.11%	9.44%	10.88%	14.71%	11.56%	15.43%	14.90%	10.30%	15.25%	11.80%	13.70%	15.46%	16.64%	15.72%	16.12%	15.68%	15.15%	15.28%	15.09%	11.70%	8.86%
Hungary	7.10%	7.08%	7.06%	6.86%	6.46%	6.69%	5.14%	5.72%	5.66%	4.61%	5.37%	5.19%	5.12%	5.25%	4.77%	5.08%	4.46%	3.74%	4.91%	4.15%	3.92%	2.63%	3.29%	3.32%	2.33%	2.22%
Iceland	4.06%	3.69%	3.54%	3.28%	3.28%	3.51%	3.68%	3.37%	3.38%	3.46%	3.37%	3.25%	3.19%	2.99%	2.88%	2.78%	2.91%	3.02%	3.01%	2.97%	3.01%	3.21%	3.17%	3.02%	2.85%	3.16%
India	30.52%	28.99%	29.05%	28.98%	27.61%	27.84%	27.30%	26.96%	26.42%	24.51%	23.73%	23.36%	22.56%	21.91%	20.90%	20.59%	18.27%	18.55%	16.96%	16.25%	15.74%	15.20%	14.87%	13.85%	13.24%	12.73%
Indonesia	16.98%	16.63%	16.47%	16.34%	15.46%	14.64%	15.08%	14.12%	13.45%	14.80%	13.93%	12.36%	13.80%	14.35%	13.84%	13.68%	13.93%	14.37%	14.53%	13.81%	14.15%	14.00%	13.46%	13.58%	13.22%	13.61%
Iran	13.35%	13.75%	14.35%	15.80%	14.92%	13.52%	13.91%	14.43%	14.01%	15.32%	14.51%	14.66%	13.84%	13.50%	12.46%	12.77%	12.62%	12.03%	11.75%	11.83%	11.39%	11.03%	10.74%	11.73%	10.48%	10.38%
Iraq	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4.86%	4.46%	4.18%	5.45%	4.12%	5.46%	5.28%	4.87%	7.79%	6.68%	7.76%	7.45%
Ireland	4.65%	2.37%	1.64%	1.32%	2.18%	2.42%	0.74%	1.09%	0.50%	-0.71%	1.06%	2.01%	2.13%	1.99%	1.43%	2.18%	1.90%	1.61%	0.92%	0.78%	0.61%	1.00%	1.16%	1.60%	1.53%	1.26%
Israel	3.96%	3.75%	3.80%	4.01%	3.78%	3.46%	3.65%	3.56%	3.56%	3.61%	3.71%	3.57%	3.40%	3.32%	3.28%	3.28%	3.55%	3.41%	3.55%	3.39%	3.14%	3.10%	3.46%	3.10%	3.10%	3.30%
Italy	4.29%	4.39%	3.98%	4.01%	3.62%	3.97%	3.86%	3.58%	3.50%	3.39%	3.37%	3.28%	3.19%	3.29%	3.06%	2.89%	2.82%	2.86%	3.15%	2.99%	2.81%	2.76%	2.81%	2.99%	2.82%	2.91%
Japan	3.67%	3.51%	3.33%	3.21%	2.99%	2.81%	2.91%	2.81%	3.01%	2.93%	2.81%	2.67%	2.53%	2.59%	2.54%	2.42%	2.43%	2.34%	2.36%	2.36%	2.22%	2.24%	2.40%	2.48%	2.37%	2.53%
Jordan	15.97%	16.13%	16.82%	13.71%	22.04%	19.66%	18.58%	17.82%	16.58%	15.86%	15.47%	14.97%	14.98%	13.38%	13.95%	12.36%	12.63%	12.33%	13.87%	11.91%	11.66%	13.22%	14.86%	12.15%	12.43%	13.44%
Kazakhstan	--	--	--	--	--	--	17.93%	16.20%	16.84%	13.78%	11.81%	11.17%	10.11%	12.48%	10.65%	11.69%	10.98%	9.73%	9.20%	9.68%	9.14%	8.35%	7.11%	9.39%	7.44%	10.56%
Kenya	19.18%	20.31%	20.52%	22.85%	21.65%	23.00%	25.31%	21.88%	24.24%	20.97%	17.66%	21.47%	20.01%	23.09%	22.23%	25.08%	24.38%	24.28%	23.84%	27.14%	26.42%	24.68%	24.82%	27.36%	25.68%	27.08%
Kiribati	30.14%	35.84%	32.90%	30.31%	27.23%	32.30%	31.20%	29.66%	29.26%	38.27%	36.15%	30.35%	27.32%	28.53%	23.82%	22.10%	24.46%	23.37%	27.07%	39.76%	47.41%	62.35%	52.14%	37.34%	36.15%	43.12%
Kuwait	--	--	--	--	--	--	3.36%	2.70%	2.60%	2.59%	2.72%	2.58%	2.57%	2.47%	2.34%	2.23%	1.52%	1.43%	1.51%	1.62%	1.73%	1.85%	2.11%	1.99%	2.08%	2.36%
Kyrgyzstan	--	--	--	--	--	--	59.08%	57.33%	58.93%	58.49%	62.53%	59.46%	62.98%	64.40%	63.37%	62.63%	60.93%	58.41%	55.38%	55.42%	55.57%	53.76%	52.98%	51.63%	52.95%	52.61%
Lao	41.71%	40.36%	36.50%	37.21%	37.54%	34.71%	37.91%	34.72%	38.65%	31.16%	33.11%	34.26%	34.47%	36.80%	46.26%	45.21%	50.70%	45.32%	44.61%	45.51%	42.43%	42.72%	39.79%	41.58%	40.11%	39.55%

Table 6. PCE Ratios FAO Dataset - Deleted Values Shaded

Country	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Latvia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lebanon	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lesotho	36.56%	33.07%	32.10%	28.05%	31.10%	27.66%	24.14%	23.10%	21.51%	25.12%	26.62%	25.95%	23.39%	24.71%	36.25%	37.74%	33.81%	32.72%	34.09%	38.91%	35.04%	35.97%	43.64%	36.56%	25.77%
Liberia	15.06%	16.02%	17.63%	14.17%	16.15%	14.11%	14.58%	14.05%	11.37%	13.59%	13.82%	12.08%	14.21%	15.22%	14.91%	14.31%	8.42%	11.55%	12.97%	13.68%	16.86%	16.06%	16.68%	17.05%	13.37%
Lithuania	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Luxembourg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Macedonia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Madagascar	23.15%	21.21%	25.65%	25.28%	26.12%	25.17%	24.95%	22.79%	25.74%	21.91%	22.04%	21.66%	21.78%	26.38%	19.81%	22.68%	16.63%	18.82%	19.38%	19.17%	30.74%	33.17%	33.20%	30.56%	34.10%
Malawi	70.91%	76.40%	75.95%	79.76%	73.80%	65.40%	71.23%	70.22%	69.73%	69.38%	69.32%	69.50%	71.35%	64.58%	60.12%	59.16%	59.06%	56.00%	50.83%	48.20%	53.79%	59.28%	48.08%	44.44%	45.07%
Malaysia	21.14%	19.27%	20.32%	19.82%	17.64%	16.03%	15.72%	15.43%	14.81%	14.73%	13.84%	13.88%	14.52%	16.46%	15.32%	13.37%	12.89%	13.40%	13.18%	13.57%	13.48%	13.35%	11.91%	11.58%	11.88%
Maldives	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mali	--	--	--	--	--	--	63.52%	60.51%	65.65%	62.98%	60.81%	53.24%	56.83%	69.96%	60.06%	48.91%	44.85%	49.76%	43.55%	49.37%	55.70%	63.07%	58.49%	53.72%	67.91%
Malta	--	--	--	--	--	--	--	--	--	22.01%	23.33%	22.49%	26.54%	27.71%	22.03%	17.70%	15.01%	13.87%	13.60%	15.52%	11.93%	11.14%	9.62%	9.05%	8.97%
Mauritania	9.44%	10.83%	10.18%	8.79%	8.19%	7.27%	8.13%	8.37%	7.83%	7.14%	7.74%	8.18%	14.14%	16.16%	17.72%	16.99%	18.46%	17.40%	15.42%	16.92%	16.29%	20.95%	22.62%	19.03%	18.38%
Mauritius	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3.09%	1.49%	6.38%	3.57%	-1.50%	12.20%	11.00%	5.55%	7.91%	9.19%
Mexico	4.94%	5.10%	5.03%	4.48%	4.42%	4.58%	4.37%	4.14%	4.01%	4.17%	4.13%	4.10%	4.06%	4.34%	4.47%	3.74%	4.01%	4.08%	3.68%	4.49%	4.42%	3.93%	4.49%	4.16%	4.13%
Moldova	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mongolia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	24.76%	25.28%	23.24%	21.20%	24.49%
Montenegro	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Morocco	--	--	--	--	--	24.07%	24.04%	28.42%	20.44%	21.18%	23.24%	21.14%	19.16%	24.71%	23.79%	19.93%	16.03%	18.16%	17.56%	17.98%	19.33%	19.00%	17.11%	17.65%	16.73%
Mozambique	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	51.08%	49.58%	53.64%	68.70%	75.81%	77.34%
Namibia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5.87%	4.16%	6.59%	7.26%	7.92%	8.30%
Nepal	36.67%	37.51%	38.17%	28.10%	33.27%	30.91%	30.93%	32.69%	38.03%	43.24%	40.00%	40.75%	41.43%	46.10%	46.25%	44.11%	45.10%	46.69%	44.13%	50.15%	47.65%	44.28%	55.89%	50.49%	47.33%
Netherlands	3.28%	3.23%	3.18%	2.96%	2.35%	2.55%	2.78%	2.48%	2.36%	2.19%	2.01%	1.72%	1.34%	1.65%	1.18%	1.15%	1.52%	1.31%	1.41%	1.44%	1.31%	1.76%	1.99%	2.28%	2.40%
New Zealand	--	--	--	--	--	--	--	--	--	3.06%	3.08%	1.91%	0.93%	0.22%	2.58%	3.00%	2.31%	2.43%	0.92%	1.08%	0.51%	1.40%	1.44%	2.32%	3.53%
Nicaragua	6.96%	6.15%	5.21%	5.59%	5.16%	6.41%	6.16%	6.51%	5.80%	4.93%	5.12%	3.56%	4.11%	5.24%	4.49%	0.60%	-0.54%	-0.20%	-3.62%	2.55%	6.07%	5.37%	5.87%	7.54%	7.69%
Niger	34.08%	34.18%	32.60%	32.97%	29.81%	32.75%	36.42%	32.03%	37.83%	34.25%	34.42%	36.06%	34.66%	40.41%	35.07%	41.01%	42.54%	42.38%	40.05%	43.61%	46.18%	44.28%	47.93%	41.89%	49.21%
Nigeria	58.82%	58.29%	56.90%	55.48%	55.48%	57.24%	69.50%	72.35%	64.90%	56.84%	45.85%	38.46%	38.60%	37.49%	40.64%	35.10%	33.47%	35.63%	34.93%	36.41%	42.98%	42.86%	44.07%	45.97%	45.11%
Norway	4.37%	4.49%	4.71%	4.36%	4.02%	3.95%	3.73%	3.75%	3.35%	3.42%	3.17%	3.12%	3.28%	3.52%	3.09%	3.17%	3.13%	3.07%	2.88%	3.00%	2.70%	2.63%	2.33%	2.29%	2.12%
Oman	6.13%	5.32%	5.34%	5.57%	5.79%	5.56%	3.54%	1.96%	1.66%	1.59%	1.89%	1.73%	3.41%	4.07%	4.13%	3.82%	4.40%	4.68%	5.30%	6.36%	5.77%	5.88%	5.14%	4.67%	4.07%
Pakistan	49.89%	48.14%	44.75%	44.25%	44.34%	38.16%	40.48%	42.72%	38.22%	35.65%	35.62%	36.85%	36.11%	34.90%	35.56%	34.33%	33.07%	31.82%	33.52%	28.61%	27.32%	27.51%	27.04%	25.61%	26.05%
Panama	11.22%	12.34%	11.59%	10.20%	8.57%	7.60%	6.47%	5.86%	5.35%	4.92%	6.01%	5.49%	6.00%	6.44%	4.35%	5.50%	5.89%	5.02%	5.49%	4.19%	4.35%	5.04%	4.78%	5.37%	5.75%
Papua New Guinea	37.84%	36.07%	34.28%	32.42%	30.15%	30.94%	28.77%	27.85%	25.33%	23.62%	23.05%	24.11%	22.47%	20.76%	20.77%	22.71%	8.06%	10.34%	11.13%	16.83%	24.17%	25.05%	22.00%	20.89%	21.81%
Paraguay	29.89%	29.44%	26.82%	27.64%	25.88%	27.33%	26.15%	25.52%	25.42%	24.86%	22.77%	18.85%	15.31%	17.42%	15.76%	19.53%	19.87%	18.84%	19.18%	17.18%	17.96%	18.59%	20.05%	20.18%	21.36%
Peru	5.73%	5.80%	5.43%	5.73%	6.50%	6.22%	6.19%	5.48%	6.17%	5.51%	5.64%	5.16%	4.40%	4.59%	4.42%	4.85%	4.14%	3.92%	3.72%	5.22%	5.95%	5.44%	6.08%	5.25%	4.81%
Philippines	16.96%	17.09%	16.13%	16.18%	17.42%	16.61%	16.99%	15.89%	16.39%	15.13%	14.99%	14.50%	13.48%	11.03%	12.77%	13.37%	12.12%	13.66%	13.27%	11.66%	12.49%	13.43%	12.65%	13.63%	15.03%
Poland	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Portugal	14.47%	16.04%	15.35%	14.55%	14.37%	11.32%	11.48%	10.64%	9.96%	9.96%	8.56%	8.09%	7.97%	9.64%	9.25%	8.04%	7.00%	6.79%	7.88%	7.22%	7.05%	6.91%	5.92%	6.29%	6.16%
Qatar	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Rep. Korea	35.18%	31.60%	33.77%	35.76%	33.38%	31.87%	28.16%	25.52%	26.37%	23.95%	22.62%	21.41%	20.23%	20.38%	21.04%	19.99%	19.24%	18.56%	18.18%	14.87%	17.07%	15.04%	14.23%	13.56%	12.87%
Romania	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	17.09%	18.24%	18.92%	17.43%	18.25%	17.14%
Russian Federation	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Rwanda	53.36%	67.33%	57.22%	58.28%	60.48%	64.79%	74.30%	66.77%	66.06%	64.75%	65.49%	64.96%	63.55%	61.02%	71.96%	57.24%	52.74%	56.03%	49.51%	54.52%	55.01%	57.87%	53.08%	51.71%	59.22%
Samoa	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	17.22%	14.31%	14.41%	15.29%
Sao Tome and Principe	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 6. PCE Ratios FAO Dataset (Cont.) - Deleted Values Shaded

Country	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Latvia	--	--	--	--	--	--	14.04%	12.27%	10.32%	10.00%	10.09%	9.31%	10.08%	9.65%	9.39%	8.67%	9.23%	9.40%	7.29%	6.81%	6.02%	6.12%	6.57%	7.14%	6.67%	7.02%
Lebanon	--	--	11.77%	22.56%	18.32%	14.86%	15.23%	14.30%	14.27%	14.22%	13.01%	14.47%	12.91%	12.31%	11.97%	10.90%	10.99%	10.49%	10.69%	9.70%	9.62%	9.95%	9.98%	9.08%	9.04%	9.55%
Lesotho	25.82%	25.64%	28.63%	25.43%	24.40%	22.52%	21.66%	20.79%	18.17%	21.19%	20.86%	18.57%	17.98%	17.06%	14.48%	14.13%	14.49%	12.92%	11.92%	10.52%	11.47%	10.85%	13.12%	12.77%	9.59%	9.30%
Liberia	15.06%	15.93%	17.59%	27.47%	37.10%	56.37%	79.90%	124.56%	146.80%	165.65%	144.05%	68.71%	54.25%	43.11%	39.12%	27.29%	21.41%	33.31%	42.69%	45.90%	39.94%	34.07%	37.04%	34.11%	33.13%	26.76%
Lithuania	--	--	--	--	--	--	9.79%	11.60%	8.94%	8.41%	10.60%	10.06%	9.59%	9.12%	8.79%	6.63%	7.25%	6.66%	5.96%	5.21%	4.09%	3.94%	3.72%	4.38%	3.46%	3.58%
Luxembourg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.01%	1.88%	1.97%	2.19%	2.33%	2.13%	2.10%	2.14%	2.49%	2.41%	2.25%	2.25%
Macedonia	--	--	--	--	--	--	13.45%	13.56%	17.71%	17.77%	17.27%	19.17%	19.47%	16.19%	15.55%	14.70%	15.55%	15.48%	16.54%	14.73%	14.43%	17.89%	15.55%	15.73%	14.86%	14.94%
Madagascar	33.60%	31.83%	34.56%	34.54%	35.59%	38.29%	39.19%	39.80%	36.08%	38.38%	39.85%	40.77%	38.44%	37.37%	34.55%	30.16%	33.36%	33.23%	33.26%	40.34%	38.38%	36.91%	36.79%	40.31%	42.06%	40.45%
Malawi	49.57%	49.40%	52.16%	53.43%	47.74%	50.04%	47.23%	57.21%	53.64%	50.44%	54.17%	49.46%	59.14%	66.14%	83.38%	95.56%	73.18%	73.46%	74.29%	63.27%	86.78%	88.14%	85.87%	89.21%	98.08%	92.59%
Malaysia	11.72%	10.92%	11.28%	12.14%	11.37%	10.90%	10.61%	10.63%	9.86%	9.91%	9.64%	9.42%	8.92%	9.20%	8.62%	9.18%	8.67%	8.61%	8.76%	8.83%	8.92%	8.64%	8.90%	9.03%	8.83%	9.21%
Maldives	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9.72%	8.90%	8.54%	8.82%	9.49%	9.76%	10.53%	11.30%	9.78%	11.92%	12.67%
Mali	66.55%	63.71%	71.08%	64.50%	67.62%	73.08%	60.16%	63.07%	65.53%	63.11%	65.36%	61.56%	63.74%	61.70%	55.73%	53.59%	56.16%	59.30%	53.92%	59.71%	55.42%	60.98%	61.57%	67.76%	65.28%	64.12%
Malta	8.49%	9.07%	9.14%	8.75%	8.52%	8.39%	8.28%	7.28%	6.73%	7.88%	8.44%	7.58%	7.40%	6.72%	5.93%	5.84%	5.70%	6.26%	7.11%	6.69%	6.69%	7.48%	7.76%	7.34%	6.48%	7.46%
Mauritania	14.73%	15.93%	19.24%	19.97%	17.25%	17.50%	15.85%	13.59%	11.82%	11.66%	12.82%	14.52%	21.12%	13.88%	15.21%	17.08%	16.70%	17.23%	17.69%	12.29%	14.96%	15.44%	17.24%	18.96%	13.39%	13.25%
Mauritius	4.66%	2.35%	2.36%	4.10%	3.90%	4.60%	4.42%	5.39%	5.33%	5.27%	4.39%	6.67%	5.11%	4.68%	7.92%	6.62%	6.30%	6.44%	6.37%	6.07%	5.84%	6.94%	8.29%	8.55%	7.81%	7.33%
Mexico	3.95%	4.00%	4.05%	4.01%	4.24%	3.94%	4.11%	3.94%	3.93%	3.82%	3.90%	3.62%	3.71%	3.86%	3.77%	4.18%	4.23%	4.25%	4.12%	4.00%	3.93%	4.03%	4.11%	3.92%	3.83%	3.69%
Moldova	--	--	--	--	--	--	35.02%	38.18%	33.55%	35.17%	34.61%	34.43%	32.97%	33.60%	35.91%	36.38%	35.59%	33.53%	34.92%	31.31%	29.03%	22.83%	30.79%	25.48%	25.77%	26.60%
Mongolia	20.80%	21.15%	20.82%	22.57%	23.53%	27.36%	27.54%	29.06%	24.21%	23.62%	25.90%	24.37%	25.63%	25.83%	26.37%	21.97%	20.10%	17.58%	19.52%	16.97%	16.49%	17.21%	20.91%	21.19%	17.58%	18.43%
Montenegro	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	11.01%	12.98%	16.69%	15.92%	14.84%	16.04%
Morocco	17.90%	17.04%	18.96%	20.40%	18.12%	18.80%	16.55%	17.41%	18.79%	15.45%	19.53%	17.02%	17.50%	16.23%	15.80%	15.93%	16.53%	16.47%	17.06%	15.01%	16.50%	15.04%	16.34%	17.15%	16.57%	17.43%
Mozambique	75.19%	68.01%	64.20%	60.89%	61.90%	55.88%	56.15%	54.73%	48.33%	77.53%	75.43%	70.78%	67.90%	64.75%	61.92%	57.13%	52.55%	51.03%	50.21%	43.41%	39.72%	40.77%	40.51%	41.09%	45.64%	43.60%
Namibia	7.50%	5.87%	6.04%	6.15%	7.20%	6.20%	5.22%	5.77%	5.04%	5.33%	5.54%	9.83%	5.89%	8.91%	8.72%	7.45%	6.66%	6.65%	6.29%	6.61%	6.15%	6.07%	5.59%	5.02%	4.70%	4.93%
Nepal	45.10%	49.27%	50.18%	50.80%	50.46%	49.40%	46.85%	48.70%	45.51%	46.95%	44.35%	44.29%	45.87%	43.23%	43.12%	41.96%	41.91%	43.17%	43.47%	43.21%	42.73%	42.07%	41.76%	41.18%	41.57%	44.14%
Netherlands	1.93%	1.56%	1.71%	0.72%	0.62%	0.75%	1.03%	1.02%	0.83%	0.79%	0.77%	0.80%	1.02%	1.05%	1.23%	1.23%	1.10%	0.69%	0.44%	0.21%	0.16%	-0.02%	-0.28%	-0.09%	-0.18%	-0.25%
New Zealand	3.22%	2.59%	2.26%	1.29%	1.57%	1.68%	1.45%	1.83%	2.07%	1.70%	1.46%	1.27%	2.51%	2.48%	2.32%	1.93%	2.04%	1.52%	0.45%	0.04%	0.29%	-0.76%	-0.69%	-0.04%	-1.89%	-0.85%
Nicaragua	8.47%	7.89%	11.48%	10.49%	9.64%	12.42%	14.80%	14.04%	11.64%	10.79%	10.71%	9.68%	13.17%	12.92%	12.22%	13.40%	13.64%	14.74%	12.43%	12.73%	13.19%	11.55%	11.43%	11.31%	8.21%	8.78%
Niger	44.11%	43.34%	50.66%	46.21%	51.84%	51.79%	58.60%	55.97%	57.37%	55.19%	62.07%	56.68%	65.66%	62.16%	62.40%	68.47%	70.67%	70.75%	66.06%	73.41%	73.27%	72.57%	77.22%	63.81%	71.13%	60.02%
Nigeria	51.10%	58.60%	61.36%	62.83%	59.76%	67.78%	72.92%	76.56%	77.93%	81.09%	79.01%	80.00%	81.38%	84.48%	80.66%	77.99%	78.25%	74.94%	60.45%	61.15%	59.36%	52.66%	52.94%	43.51%	44.85%	44.01%
Norway	2.18%	2.19%	2.19%	2.17%	2.17%	1.95%	1.86%	1.85%	1.83%	1.79%	1.74%	1.60%	1.55%	1.54%	1.37%	1.36%	1.42%	1.48%	1.54%	1.52%	1.55%	1.70%	1.90%	1.74%	1.81%	1.93%
Oman	3.78%	3.75%	3.74%	3.29%	3.53%	3.35%	3.18%	3.04%	2.87%	2.94%	2.89%	2.50%	2.47%	2.49%	1.97%	2.29%	2.08%	2.23%	2.69%	2.31%	2.49%	2.96%	3.71%	2.89%	3.35%	3.13%
Pakistan	26.97%	25.52%	23.91%	25.49%	25.29%	24.19%	23.47%	25.36%	24.53%	25.01%	25.09%	25.18%	25.18%	24.56%	24.84%	23.25%	22.66%	22.28%	21.62%	21.39%	20.96%	20.77%	21.02%	21.10%	19.92%	19.93%
Panama	5.63%	5.70%	5.23%	6.40%	5.39%	6.21%	6.37%	6.28%	6.63%	7.30%	7.67%	7.47%	8.41%	7.66%	8.04%	8.72%	8.85%	8.77%	8.21%	7.77%	7.23%	7.63%	7.83%	7.67%	7.72%	7.67%
Papua New Guinea	16.68%	21.13%	22.76%	22.80%	27.03%	27.23%	24.95%	21.21%	17.53%	18.63%	19.66%	17.42%	18.77%	21.38%	23.04%	24.86%	24.23%	22.55%	22.95%	22.50%	24.53%	24.24%	24.54%	23.38%	21.03%	18.21%
Paraguay	17.41%	18.97%	19.28%	17.33%	16.71%	17.71%	18.57%	18.57%	18.61%	19.87%	19.21%	19.30%	20.04%	22.10%	20.63%	23.26%	25.04%	24.51%	21.89%	21.13%	20.25%	21.45%	18.16%	13.59%	21.26%	22.25%
Peru	4.91%	5.37%	6.15%	6.03%	6.52%	6.52%	6.70%	6.97%	6.48%	6.39%	6.90%	6.40%	6.73%	6.79%	6.87%	6.88%	6.73%	6.54%	6.08%	6.13%	5.81%	5.81%	5.77%	5.76%	5.34%	4.75%
Philippines	15.38%	14.95%	14.93%	15.37%	16.46%	16.02%	16.76%	16.95%	17.15%	17.35%	17.95%	16.77%	16.56%	16.69%	16.39%	16.33%	16.37%	15.99%	15.65%	15.24%	14.96%	15.22%	16.45%	15.52%	14.82%	14.07%
Poland	--	--	--	--	10.30%	10.42%	9.16%	9.92%	7.98%	8.18%	8.08%	6.84%	7.10%	6.53%	6.12%	6.01%	5.82%	5.24%	4.98%	4.37%	3.92%	4.04%	3.79%	3.89%	3.51%	3.27%
Portugal	6.06%	6.41%	5.20%	5.79%	6.29%	6.23%	5.92%	5.69%	5.94%	5.97%	6.11%	5.31%	5.03%	5.36%	4.79%	4.60%	4.65%	4.73%	5.25%	4.90%	4.90%	5.02%	5.25%	5.10%	5.22%	5.32%
Qatar	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.48%	1.45%	1.51%	1.43%	1.03%	1.32%	1.25%	1.29%	1.68%	1.35%	1.47%	0.90%
Rep. Korea	11.95%	10.68%	10.47%	9.96%	8.88%	8.07%	8.15%	7.42%	7.06%	6.80%	6.89%	6.65%	6.67%	6.40%	6.04%	5.75%	5.18%	4.86%	4.88%	4.72%	4.54%	4.49%	4.86%	4.64%	4.19%	4.24%
Romania	16.03%	13.89%	14.53%	15.05%	16.05%	17.30%	17.77%	19.85%	17.61%	17.07%	15.77%	17.41%	17.13%	18.29%	15.60%	17.14%	15.50%	16.85%	17.03%	14.40%	13.76%	11.71%	12.50%	12.74%	11.84%	12.67%
Russian Federation	--	--	--	--	--	--	10.86%	10.82%	10.85%	10.98%	10.74%	10.75%	9.75%	8.76%	8.22%	8.39%	8.15%	7.70%	7.48%	7.24%	7.18%	6.62%	7.04%	7.36%	6.97%	7.71%
Rwanda	41.83%	44.55%	42.68%	47.10%	48.22%	59.07%	58.30%	50.19%	81.33%	61.41%	61.05%	54.40%	56.21%	54.70%	61.58%	57.80%	62.01%	56.66%	52.01%	50.91%	47.46%	44.89%	40.13%	54.00%	54.85%	54.54%
Samoa	15.14%	14.98%	16.25%	14.99%	16.13%	14.47%	14.59%	15.51%	17.61%	17.82%	17.98%	15.15%	15.46%	13.83%	13.65%	12.92%	13.36%	13.82%	15.23%	14.64%	15.45%	15.40%	16.09%	20.42%	22.36%	20.54%
Sao Tome and Principe	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	13.71%	14.40%	13.57%	16.43%	16.83%	17.63%	20.01%	17.92%	20.45%	15.55%	18.35%

Table 6. PCE Ratios FAO Dataset - Deleted Values Shaded

Country	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Saudi Arabia	--	--	--	--	--	--	--	2.81%	2.83%	2.66%	3.02%	1.94%	1.94%	1.95%	1.92%	2.14%	2.57%	3.33%	3.66%	4.20%	4.41%	5.10%	5.10%	5.83%	4.63%
Senegal	25.46%	25.97%	27.39%	27.46%	27.86%	25.55%	27.11%	21.78%	24.75%	16.57%	23.43%	14.84%	22.55%	28.51%	24.65%	22.00%	14.70%	23.58%	17.92%	19.58%	24.33%	18.18%	15.06%	16.08%	17.66%
Serbia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Seychelles	6.07%	6.28%	5.79%	5.77%	5.60%	6.06%	7.06%	5.18%	3.17%	4.55%	5.48%	5.32%	7.43%	9.56%	9.14%	8.40%	7.32%	8.16%	7.74%	9.04%	8.45%	8.96%	6.98%	7.11%	5.94%
Sierra Leone	15.68%	16.98%	18.25%	16.16%	17.14%	16.74%	18.60%	15.30%	14.51%	15.21%	13.67%	10.83%	13.37%	18.38%	11.55%	11.21%	6.24%	11.02%	10.30%	10.68%	12.43%	13.38%	10.81%	8.88%	8.86%
Singapore	13.74%	11.64%	11.85%	12.38%	12.00%	11.39%	9.33%	9.99%	9.21%	8.24%	7.86%	8.05%	9.10%	8.75%	8.09%	8.80%	7.43%	6.10%	6.60%	5.71%	5.46%	5.01%	5.21%	4.14%	4.15%
Slovakia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Slovenia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solomon Islands	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
South Africa	6.46%	5.60%	5.62%	5.26%	5.59%	5.85%	5.88%	4.76%	5.43%	4.93%	5.22%	4.78%	4.00%	3.91%	3.67%	4.20%	4.54%	4.49%	4.27%	3.50%	4.39%	4.38%	4.78%	5.32%	5.08%
Spain	7.46%	6.70%	7.41%	6.44%	6.26%	6.40%	5.66%	5.65%	5.24%	5.21%	5.18%	5.06%	5.25%	5.33%	5.33%	4.86%	4.67%	4.99%	5.06%	5.17%	4.60%	5.16%	4.81%	5.18%	4.98%
Sri Lanka	3.36%	2.42%	3.50%	14.98%	4.34%	10.25%	11.51%	12.45%	13.38%	15.53%	13.66%	13.99%	14.89%	20.30%	21.32%	13.99%	8.53%	9.40%	14.34%	16.90%	14.39%	11.95%	13.58%	6.36%	10.81%
St. Kitts and Nevis	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	-3.53%	-5.10%	-1.86%	-4.00%	-2.38%	1.50%	2.62%	1.23%	5.15%
St. Lucia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	13.63%	12.59%	13.39%	11.45%	8.18%	6.55%
St. Vincent and the Grenadines	5.54%	5.89%	7.09%	7.87%	7.30%	7.24%	8.52%	7.87%	8.59%	10.10%	13.33%	10.93%	10.15%	7.95%	12.51%	5.61%	6.50%	5.48%	8.97%	11.01%	3.98%	4.34%	-0.04%	-6.61%	-13.42%
Sudan	52.27%	49.05%	54.00%	54.67%	49.40%	51.37%	57.43%	51.48%	53.87%	54.42%	55.33%	58.35%	61.37%	60.52%	55.73%	47.27%	45.16%	50.75%	50.65%	56.96%	56.62%	44.92%	46.66%	43.80%	60.75%
Suriname	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4.64%	6.52%	6.91%	6.18%	5.04%	5.61%	7.75%	6.97%	7.19%	7.94%	6.03%
Swaziland	--	--	--	--	--	--	--	--	--	-6.72%	-6.68%	-10.79%	-14.08%	-34.35%	-30.37%	-19.61%	-16.37%	-16.66%	-22.19%	-37.26%	-19.08%	-9.88%	-10.95%	-4.66%	0.22%
Sweden	3.86%	3.78%	3.69%	3.62%	3.43%	3.31%	3.24%	3.19%	2.77%	2.90%	2.71%	2.63%	2.75%	2.83%	2.71%	2.96%	3.16%	3.11%	3.04%	2.94%	2.67%	2.49%	2.33%	2.37%	2.18%
Switzerland	--	--	--	--	--	--	--	--	--	3.25%	3.19%	3.10%	3.50%	3.47%	3.66%	3.68%	3.63%	3.76%	3.73%	3.56%	3.32%	3.52%	3.23%	3.21%	3.04%
Tajikistan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tanzania	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thailand	--	--	--	--	35.58%	38.94%	30.72%	31.54%	32.34%	29.69%	27.73%	24.00%	25.05%	16.00%	19.29%	16.31%	14.29%	17.08%	14.25%	14.16%	12.04%	11.66%	14.59%	13.55%	15.77%
Timor-Leste	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Togo	42.42%	43.46%	45.66%	35.04%	34.19%	33.09%	31.80%	29.44%	24.49%	23.39%	26.74%	25.06%	25.68%	22.06%	23.36%	22.87%	18.46%	16.72%	24.26%	23.02%	27.08%	30.28%	30.27%	29.50%	29.05%
Tonga	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	22.14%	18.20%	17.38%	15.79%	16.15%
Trinidad and Tobago	6.46%	6.66%	5.76%	5.62%	6.31%	6.48%	6.08%	5.38%	5.74%	5.38%	5.49%	5.53%	6.08%	5.66%	4.74%	5.68%	6.00%	6.12%	6.25%	6.61%	6.85%	7.15%	7.71%	7.69%	6.80%
Tunisia	29.35%	27.45%	26.82%	25.59%	24.26%	20.96%	24.68%	20.80%	18.39%	20.62%	23.16%	19.17%	22.02%	23.15%	24.16%	20.67%	20.97%	19.34%	18.32%	20.73%	18.73%	16.27%	18.63%	16.67%	16.99%
Turkey	27.52%	26.44%	25.46%	23.59%	22.71%	22.27%	21.18%	20.81%	19.84%	20.61%	20.22%	18.91%	16.58%	17.95%	18.00%	16.90%	15.99%	16.26%	16.49%	17.38%	16.48%	16.84%	15.59%	16.29%	15.89%
Turkmenistan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tuvalu	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Uganda	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	14.16%	15.44%	12.86%	16.17%
Ukraine	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
United Arab Emirates	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.88%	1.86%	1.68%	1.88%	1.78%	1.75%	1.68%	1.78%	1.62%	1.58%	1.61%
United Kingdom	4.77%	4.96%	4.90%	4.76%	4.54%	4.35%	4.27%	3.87%	3.77%	3.78%	3.74%	3.63%	3.67%	4.02%	3.85%	3.43%	3.64%	3.40%	3.52%	3.43%	3.09%	3.09%	2.88%	2.86%	2.63%
United States of America	3.56%	3.36%	3.29%	3.13%	3.02%	2.87%	2.99%	3.00%	2.93%	2.83%	2.92%	2.70%	2.24%	2.24%	2.33%	2.34%	2.52%	2.27%	2.21%	1.99%	2.05%	2.32%	2.01%	2.16%	2.30%
Uruguay	11.83%	11.52%	11.44%	11.88%	9.72%	9.63%	10.02%	11.47%	10.41%	11.11%	9.87%	8.73%	8.37%	10.34%	8.64%	7.95%	6.63%	6.71%	6.79%	5.31%	4.90%	6.70%	6.90%	7.55%	8.20%
Uzbekistan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanuatu	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	32.76%	34.69%	34.01%	28.25%	25.85%	27.03%	24.69%
Venezuela	5.97%	5.59%	5.35%	5.46%	5.55%	5.54%	5.79%	5.38%	5.76%	5.67%	5.72%	5.87%	5.90%	6.45%	6.54%	6.34%	7.10%	6.64%	6.57%	7.81%	8.12%	8.11%	7.48%	7.38%	7.43%
Viet Nam	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	30.49%	29.51%
Yemen	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zambia	6.47%	6.07%	5.83%	5.48%	4.67%	6.08%	4.55%	6.05%	6.99%	6.67%	9.24%	7.29%	5.50%	6.56%	7.00%	5.95%	5.68%	5.01%	6.54%	8.91%	5.44%	5.21%	5.09%	5.12%	5.00%
Zimbabwe	6.77%	5.71%	7.20%	6.50%	2.69%	5.34%	3.73%	2.95%	3.64%	2.74%	3.72%	2.48%	-0.07%	-0.26%	-6.28%	-0.24%	0.20%	0.15%	-0.58%	1.99%	1.69%	1.58%	1.56%	4.29%	4.36%
World Total	7.91%	7.74%	7.63%	7.30%	7.11%	6.89%	6.85%	6.60%	6.27%	5.98%	5.85%	5.50%	5.33%	5.35%	5.45%	5.19%	5.16%	5.13%	5.06%	4.98%	5.00%	5.23%	5.12%	5.15%	5.07%

Table 6. PCE Ratios FAO Dataset (Cont.) - Deleted Values Shaded

Country	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Saudi Arabia	4.18%	4.59%	4.30%	4.15%	3.96%	3.79%	3.64%	3.39%	3.36%	3.80%	3.81%	3.81%	3.63%	3.63%	3.70%	3.56%	3.71%	3.71%	3.54%	3.76%	3.64%	3.86%	4.03%	3.35%	3.87%	3.87%
Senegal	16.98%	16.96%	15.94%	18.55%	18.95%	15.96%	15.41%	15.90%	15.37%	17.53%	16.65%	13.89%	14.23%	16.61%	14.60%	14.71%	11.25%	15.01%	15.04%	16.22%	13.53%	15.73%	24.07%	17.54%	17.37%	15.13%
Serbia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	12.76%	10.61%	12.00%	11.63%	10.61%	10.18%
Seychelles	6.41%	6.62%	6.86%	6.40%	6.32%	5.77%	6.62%	5.98%	5.88%	6.57%	6.97%	6.95%	5.45%	4.70%	5.06%	3.43%	4.22%	5.92%	4.34%	5.99%	6.96%	6.30%	5.51%	4.64%	4.50%	4.72%
Sierra Leone	12.35%	10.97%	13.54%	15.60%	15.76%	14.51%	17.66%	17.25%	21.55%	22.48%	26.55%	24.41%	23.27%	20.96%	17.52%	22.48%	22.12%	21.66%	17.82%	16.82%	19.63%	16.75%	20.20%	19.03%	19.96%	21.85%
Singapore	3.64%	3.29%	3.09%	2.89%	3.09%	2.86%	2.81%	2.66%	1.98%	1.83%	2.01%	1.75%	1.31%	1.49%	1.33%	1.51%	1.29%	1.27%	1.14%	1.10%	1.02%	1.17%	1.30%	1.12%	1.19%	1.20%
Slovakia	--	--	--	--	--	--	--	6.94%	6.18%	5.55%	5.92%	5.62%	5.20%	4.82%	4.30%	4.38%	4.17%	3.77%	4.01%	3.75%	3.27%	3.10%	3.69%	3.47%	3.15%	2.97%
Slovenia	--	--	--	--	--	--	3.77%	4.82%	5.09%	5.29%	5.28%	4.83%	4.57%	4.45%	4.03%	3.80%	3.93%	3.90%	4.14%	3.96%	3.67%	3.80%	3.92%	4.07%	3.82%	4.21%
Solomon Islands	--	--	--	--	17.29%	17.37%	16.00%	14.90%	14.65%	14.23%	14.93%	15.56%	13.81%	14.04%	16.49%	19.13%	19.43%	18.61%	21.19%	24.52%	25.08%	23.39%	25.00%	22.77%	27.67%	22.94%
South Africa	4.89%	5.16%	5.19%	4.88%	5.05%	5.25%	5.15%	5.45%	5.27%	4.83%	5.19%	5.07%	4.73%	4.96%	5.29%	4.80%	5.00%	4.75%	4.78%	4.62%	4.53%	4.62%	4.92%	4.77%	4.62%	4.56%
Spain	4.75%	4.73%	4.29%	4.37%	4.49%	4.22%	4.22%	4.02%	3.78%	3.35%	3.92%	3.90%	3.73%	3.63%	3.66%	3.48%	3.46%	3.47%	3.27%	2.91%	2.96%	2.94%	2.82%	2.88%	2.81%	2.89%
Sri Lanka	12.36%	9.21%	10.75%	11.59%	9.66%	9.42%	10.34%	10.40%	10.68%	10.38%	8.28%	6.85%	6.21%	6.81%	6.38%	6.37%	6.32%	6.20%	5.73%	5.23%	7.21%	7.05%	5.29%	4.64%	4.67%	4.61%
St. Kitts and Nevis	2.47%	1.32%	3.16%	2.49%	4.25%	4.07%	2.40%	3.18%	2.67%	2.86%	4.61%	2.49%	3.63%	3.47%	6.68%	5.53%	4.85%	5.41%	4.75%	4.85%	6.16%	6.51%	6.11%	6.78%	6.30%	5.20%
St. Lucia	-0.17%	4.47%	-0.37%	3.74%	0.64%	4.62%	3.45%	6.15%	7.40%	7.03%	6.82%	9.73%	8.78%	7.03%	8.33%	8.15%	7.07%	8.44%	8.54%	8.39%	8.29%	8.47%	8.07%	3.98%	7.65%	7.73%
St. Vincent and the Grenadines	-14.92%	-5.45%	-11.20%	-5.77%	-7.70%	-4.99%	-6.89%	-0.66%	1.25%	-0.51%	2.60%	3.82%	2.26%	0.96%	0.77%	4.05%	4.54%	5.08%	5.37%	5.65%	5.62%	7.27%	8.95%	8.09%	9.53%	8.70%
Sudan	54.23%	42.02%	51.96%	40.67%	41.32%	49.87%	50.13%	42.93%	51.51%	47.71%	50.17%	46.47%	48.39%	47.22%	47.94%	49.84%	47.49%	49.39%	48.00%	47.65%	45.50%	40.00%	39.73%	38.70%	36.69%	4.37%
Suriname	7.39%	8.15%	7.88%	9.41%	11.10%	12.37%	12.05%	11.94%	10.79%	11.03%	10.82%	10.73%	13.25%	10.69%	9.78%	10.35%	8.86%	8.52%	9.49%	9.27%	9.89%	10.35%	9.00%	9.43%	9.44%	10.55%
Swaziland	-6.48%	-14.00%	-11.84%	-7.63%	-12.02%	-11.01%	-7.63%	-5.56%	-6.03%	-6.60%	-6.49%	-4.69%	-1.87%	1.02%	-1.01%	-1.41%	2.96%	3.19%	3.77%	5.00%	-3.05%	3.81%	2.67%	3.81%	2.99%	2.10%
Sweden	2.35%	2.22%	2.31%	2.24%	2.29%	2.18%	2.21%	2.32%	2.29%	2.13%	2.15%	2.05%	1.98%	1.89%	1.71%	1.68%	1.71%	1.78%	1.82%	1.72%	1.67%	1.76%	1.90%	1.90%	1.75%	1.86%
Switzerland	3.11%	3.01%	3.04%	2.86%	2.77%	2.75%	2.80%	2.66%	2.60%	2.62%	2.66%	2.43%	2.47%	2.27%	2.23%	2.12%	2.20%	2.21%	2.20%	2.09%	2.03%	2.00%	2.07%	2.05%	1.94%	2.02%
Tajikistan	--	--	--	--	--	--	42.70%	43.21%	46.48%	51.34%	50.61%	51.62%	45.03%	45.90%	50.66%	44.32%	46.58%	44.78%	47.30%	50.10%	50.98%	47.40%	49.69%	56.18%	55.30%	54.62%
Tanzania	--	--	13.59%	13.65%	13.65%	14.43%	14.51%	13.67%	12.79%	13.12%	12.67%	12.75%	15.09%	12.74%	12.39%	13.14%	15.60%	12.72%	14.30%	12.74%	13.92%	12.86%	11.18%	11.22%	12.04%	12.64%
Thailand	13.18%	12.13%	10.91%	8.76%	8.36%	8.65%	8.25%	8.56%	7.98%	6.77%	6.48%	7.04%	8.18%	8.28%	9.41%	9.44%	9.09%	8.49%	6.62%	6.94%	6.64%	6.45%	4.68%	4.95%	4.62%	3.39%
Timor-Leste	--	--	--	--	--	--	--	--	--	--	--	--	--	16.41%	16.25%	15.79%	16.21%	16.72%	15.12%	13.34%	14.81%	14.81%	11.91%	13.12%	10.79%	11.66%
Togo	28.67%	27.66%	32.38%	33.77%	33.77%	33.36%	35.33%	48.23%	42.14%	39.58%	37.79%	32.65%	33.21%	32.73%	32.95%	36.48%	37.42%	36.39%	36.20%	37.25%	40.61%	34.22%	41.24%	34.44%	37.44%	44.17%
Tonga	15.46%	14.96%	17.28%	14.61%	13.50%	7.77%	10.70%	11.75%	12.15%	11.20%	13.84%	13.99%	15.08%	11.86%	13.10%	13.26%	12.09%	10.80%	13.76%	14.79%	14.54%	18.34%	16.66%	16.30%	17.65%	16.00%
Trinidad and Tobago	6.17%	5.95%	4.65%	4.38%	4.33%	4.27%	4.33%	3.71%	3.29%	3.42%	3.42%	3.17%	3.18%	2.96%	2.87%	3.07%	2.90%	2.66%	2.61%	2.60%	2.32%	2.64%	3.04%	2.98%	3.10%	3.83%
Tunisia	16.54%	16.29%	15.50%	16.81%	17.38%	18.08%	15.65%	16.50%	13.00%	14.19%	17.75%	13.68%	15.06%	14.49%	12.63%	11.58%	11.39%	13.54%	11.92%	11.62%	12.05%	12.16%	12.17%	10.22%	10.21%	11.01%
Turkey	16.15%	14.23%	14.57%	14.06%	14.01%	13.43%	12.72%	11.97%	12.47%	11.70%	11.89%	10.49%	11.38%	11.21%	11.27%	10.71%	11.00%	10.30%	9.44%	8.90%	8.81%	8.17%	8.27%	8.61%	8.22%	7.97%
Turkmenistan	--	--	--	--	--	--	43.89%	50.08%	61.39%	65.31%	48.39%	55.17%	61.78%	64.61%	66.75%	69.92%	84.03%	89.05%	85.46%	84.67%	73.97%	75.18%	63.02%	63.50%	54.19%	43.86%
Tuvalu	--	--	--	--	7.73%	10.42%	10.03%	7.96%	9.42%	10.34%	11.40%	10.41%	8.66%	8.20%	9.24%	8.37%	15.98%	13.33%	18.57%	22.69%	16.56%	13.67%	14.56%	16.29%	16.35%	11.16%
Uganda	13.79%	21.49%	23.51%	25.11%	30.00%	29.95%	29.86%	28.26%	24.76%	19.65%	15.68%	18.39%	19.72%	19.54%	22.46%	23.26%	22.23%	23.58%	21.10%	19.48%	17.32%	15.86%	13.75%	13.90%	13.14%	11.86%
Ukraine	--	--	--	--	--	--	18.47%	21.52%	22.05%	23.09%	24.31%	25.68%	23.66%	21.59%	23.98%	22.05%	20.95%	19.52%	18.38%	17.53%	17.34%	15.29%	16.42%	18.23%	18.39%	19.67%
United Arab Emirates	2.01%	2.08%	2.04%	2.17%	1.65%	1.59%	1.76%	1.66%	2.03%	2.00%	1.98%	1.65%	1.76%	1.88%	1.72%	1.63%	1.91%	1.75%	1.91%	0.97%	2.08%	2.27%	2.96%	3.04%	3.03%	3.59%
United Kingdom	2.65%	2.58%	2.56%	2.42%	2.56%	2.51%	2.54%	2.24%	2.10%	2.03%	2.04%	1.95%	1.94%	1.91%	1.73%	1.66%	1.71%	1.76%	1.83%	1.82%	1.82%	1.87%	1.99%	1.95%	1.91%	1.99%
United States of America	2.24%	2.12%	1.78%	1.82%	1.90%	1.88%	1.91%	1.74%	1.92%	1.70%	1.70%	1.76%	1.73%	1.73%	1.69%	1.63%	1.61%	1.61%	1.64%	1.57%	1.54%	1.50%	1.44%	1.58%	1.52%	1.40%
Uruguay	6.66%	7.10%	7.17%	6.29%	4.94%	5.87%	7.09%	6.26%	6.69%	6.09%	6.22%	5.40%	4.82%	6.99%	7.02%	6.55%	7.46%	6.76%	5.88%	5.55%	4.94%	4.23%	1.57%	2.61%	4.35%	4.22%
Uzbekistan	--	--	--	--	--	--	22.71%	18.93%	20.44%	20.23%	20.63%	14.99%	15.10%	13.09%	12.21%	10.68%	11.23%	10.65%	10.14%	10.47%	9.96%	10.67%	12.34%	10.93%	10.30%	10.58%
Vanuatu	24.27%	24.37%	23.41%	21.69%	23.29%	20.29%	20.64%	19.94%	17.00%	18.02%	19.84%	20.28%	20.74%	17.75%	15.73%	16.77%	16.16%	15.92%	16.28%	16.11%	15.27%	16.53%	16.93%	15.49%	19.11%	18.89%
Venezuela	6.95%	7.26%	7.87%	7.34%	6.88%	6.74%	6.70%	6.76%	6.64%	6.70%	6.97%	6.80%	7.40%	8.13%	8.33%	8.46%	8.81%	9.91%	8.47%	8.15%	8.16%	8.86%	9.99%	9.16%	8.57%	8.11%
Viet Nam	27.93%	28.24%	28.66%	26.01%	24.97%	24.92%	23.81%	23.92%	22.09%	20.54%	19.22%	17.85%	17.43%	18.40%	19.41%	19.83%	20.97%	20.80%	19.68%	18.90%	18.30%	17.79%	16.18%	16.90%	16.52%	15.29%
Yemen	--	--	--	--	24.83%	22.54%	25.20%	25.10%	21.19%	20.09%	22.77%	17.10%	18.29%	17.07%	17.19%	17.15%	17.36%	17.51%	17.03%	17.19%	18.26%	21.88%	23.24%	22.45%	22.34%	26.11%
Zambia	4.35%	4.38%	5.35%	5.23%	5.11%	4.65%	6.60%	5.73%	5.25%	5.37%	5.44%	5.03%	7.05%	4.74%	4.60%	4.44%	5.07%	5.71%	3.84%	3.73%	4.98%	2.70%	3.13%	3.65%	3.42%	2.43%
Zimbabwe	2.51%	0.89%	2.61%	3.19%	2.12%	2.72%	8.57%	6.03%	0.00%	0.80%	3.17%	2.26%	2.32%	3.46%	3.66%	5.07%	5.77%	7.38%	11.32%	6.78%	23.10%	11.22%	15.55%	20.08%	21.56%	20.83%
World Total	5.01%	4.90%	4.72%	4.68%	4.71%	4.71%	5.00%	4.92%	4.90%	4.83%	4.86%	4.72%	4.70%	4.70%	4.54%	4.48%	4.46%	4.44%	4.43%	4.33%	4.26%	4.21%	4.32%	4.43%	4.31%	4.28%

Table 7. PCE Ratios FAO-Clean Dataset

Country	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Afghanistan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Albania	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	16.25%	16.93%	17.25%	18.23%	17.04%	16.65%
Algeria	23.51%	28.73%	20.42%	18.70%	19.53%	14.77%	15.10%	16.74%	14.50%	13.26%	16.22%	12.65%	12.19%	15.04%	18.11%	13.74%	12.84%	12.77%	12.53%	15.06%	14.31%	12.46%	11.82%	10.80%	12.34%
Angola	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5.09%
Antigua and Barbuda	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	11.52%	13.16%	12.83%	15.10%	14.80%	14.12%	13.31%	13.69%	11.33%
Argentina	9.68%	8.91%	9.71%	7.19%	5.37%	6.71%	8.93%	8.25%	7.87%	7.16%	6.26%	6.14%	4.02%	3.80%	6.35%	6.40%	4.53%	6.31%	5.23%	4.90%	4.37%	7.34%	5.17%	6.98%	8.06%
Armenia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Australia	3.23%	3.38%	3.56%	2.74%	2.66%	3.48%	2.46%	3.36%	3.17%	2.80%	2.63%	2.18%	2.00%	--	--	1.33%	1.54%	2.42%	1.98%	--	--	--	2.60%	2.16%	1.90%
Austria	6.06%	5.92%	6.01%	5.80%	5.20%	5.36%	5.13%	5.08%	4.62%	4.35%	4.14%	3.79%	4.13%	3.92%	3.94%	3.88%	3.90%	3.97%	3.82%	3.89%	3.56%	3.70%	3.33%	3.41%	3.26%
Azerbaijan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bahamas	5.29%	4.65%	4.54%	4.74%	4.44%	4.94%	4.70%	4.71%	5.97%	6.32%	5.86%	6.36%	6.47%	7.94%	8.11%	8.30%	5.64%	4.71%	4.91%	6.31%	4.96%	6.73%	5.62%	5.25%	5.05%
Bahrain	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6.21%	5.62%	6.22%	6.08%	5.98%	5.69%
Bangladesh	23.96%	21.01%	25.94%	22.53%	20.43%	20.70%	24.13%	22.58%	23.28%	21.94%	22.15%	25.85%	32.68%	28.70%	31.31%	26.38%	23.73%	25.39%	22.38%	25.35%	22.15%	23.10%	22.53%	21.54%	23.19%
Barbados	5.42%	5.71%	3.07%	5.41%	5.29%	5.03%	4.77%	5.71%	5.99%	6.47%	6.71%	7.41%	7.11%	5.93%	2.92%	6.56%	6.97%	7.46%	6.58%	5.43%	7.38%	7.07%	7.51%	6.61%	6.20%
Belarus	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Belgium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Belize	9.82%	21.50%	10.74%	8.65%	15.83%	14.15%	17.23%	18.39%	18.57%	20.64%	20.88%	11.88%	9.23%	--	--	13.47%	8.16%	4.03%	7.46%	--	10.24%	9.62%	7.88%	8.58%	12.39%
Benin	16.88%	16.63%	16.31%	15.67%	15.41%	15.35%	15.82%	15.61%	14.43%	13.93%	14.55%	14.57%	14.21%	13.21%	13.60%	15.85%	15.71%	16.45%	17.07%	16.06%	15.44%	15.62%	16.18%	16.56%	15.06%
Bermuda	5.57%	5.26%	5.51%	4.95%	4.98%	4.70%	3.94%	4.08%	3.93%	3.76%	3.81%	4.18%	4.52%	4.99%	4.39%	4.16%	3.57%	3.79%	3.76%	3.60%	3.62%	3.50%	3.57%	3.64%	3.49%
Bhutan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	74.49%
Bolivia	14.50%	14.51%	14.63%	13.10%	13.43%	12.04%	11.68%	14.41%	13.76%	14.35%	13.62%	13.38%	11.96%	13.48%	14.36%	12.37%	11.57%	12.60%	12.04%	12.90%	15.18%	15.06%	12.85%	15.32%	17.30%
Bosnia and Herzegovina	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Botswana	4.60%	5.52%	3.65%	--	--	--	2.99%	4.40%	5.53%	3.07%	3.82%	1.86%	--	--	--	--	--	--	--	6.41%	2.11%	1.43%	3.29%	3.78%	2.24%
Brazil	5.25%	6.00%	5.80%	6.31%	6.59%	5.93%	6.75%	6.00%	5.41%	5.01%	4.79%	3.90%	2.94%	2.97%	3.23%	2.87%	2.13%	2.66%	3.07%	2.77%	3.06%	3.65%	3.42%	3.35%	3.93%
Brunei Darussalam	--	--	--	--	--	--	--	--	--	--	--	--	--	1.62%	1.85%	1.49%	1.39%	1.40%	1.29%	1.67%	2.28%	2.09%	2.05%	2.07%	1.84%
Bulgaria	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	15.92%	19.92%	18.57%	19.01%	20.73%	19.58%
Burkina Faso	32.14%	34.12%	35.49%	38.97%	33.36%	38.23%	35.19%	35.12%	34.19%	35.92%	33.00%	39.98%	39.48%	40.76%	35.05%	29.33%	31.81%	34.98%	32.72%	31.22%	34.80%	32.14%	30.43%	32.78%	37.92%
Burundi	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cabo Verde	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	67.39%	64.71%	52.63%	56.01%	52.39%
Cambodia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cameroon	22.49%	22.09%	20.78%	22.28%	21.56%	21.00%	25.40%	23.25%	20.00%	24.10%	26.35%	27.53%	23.31%	19.21%	19.01%	17.53%	12.23%	8.31%	9.13%	10.13%	13.46%	14.74%	13.50%	11.07%	11.50%
Canada	3.76%	4.21%	4.07%	3.22%	3.47%	3.22%	3.42%	3.61%	3.76%	3.26%	3.20%	2.96%	2.68%	2.31%	2.51%	2.66%	2.82%	2.83%	2.49%	2.10%	2.15%	2.17%	1.98%	2.05%	2.39%
Central African Republic	16.14%	17.03%	18.50%	14.61%	18.21%	15.80%	18.03%	18.29%	17.77%	17.32%	17.70%	18.09%	21.77%	18.67%	21.16%	18.14%	13.53%	16.26%	18.76%	18.66%	23.71%	18.96%	22.94%	18.91%	17.40%
Chad	10.45%	10.54%	12.17%	11.51%	12.18%	13.31%	13.74%	14.06%	12.61%	11.93%	11.43%	11.29%	12.96%	12.84%	11.23%	8.02%	7.53%	7.51%	9.26%	7.29%	6.85%	9.54%	7.59%	7.84%	8.11%
Chile	10.39%	10.07%	10.28%	9.90%	9.60%	9.86%	9.16%	9.17%	8.73%	8.67%	8.10%	8.74%	8.82%	12.81%	9.52%	10.46%	8.09%	8.26%	8.42%	8.48%	8.22%	7.88%	7.76%	6.86%	5.31%
China	--	--	--	--	--	--	--	--	--	--	--	77.17%	78.38%	77.72%	72.53%	73.63%	71.19%	69.87%	69.29%	65.12%	64.91%	64.79%	61.78%	57.59%	49.89%
Colombia	5.09%	5.11%	5.44%	4.32%	5.06%	5.38%	5.46%	5.34%	5.33%	4.32%	5.82%	5.06%	4.05%	4.43%	4.47%	4.03%	1.86%	--	--	--	4.34%	4.17%	4.63%	3.99%	4.09%
Comoros	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	12.27%	8.38%	4.18%	4.61%	11.29%	3.27%
Congo	20.02%	20.03%	22.00%	21.68%	23.59%	21.31%	23.37%	22.97%	18.76%	17.25%	17.58%	14.76%	14.46%	13.27%	13.28%	13.45%	14.04%	14.60%	14.55%	13.12%	10.72%	10.26%	9.32%	9.08%	9.62%
Costa Rica	--	--	--	--	--	--	--	1.85%	1.79%	1.80%	4.99%	1.59%	--	--	--	--	--	--	--	--	--	--	--	--	--
Côte d Ivoire	6.63%	10.88%	4.85%	1.89%	7.17%	5.01%	6.55%	1.52%	3.56%	2.74%	4.80%	5.74%	4.20%	--	--	--	--	--	--	--	--	--	--	--	--
Croatia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cuba	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyprus	--	--	--	--	--	--	--	--	--	--	--	--	--	--	14.40%	11.28%	8.58%	9.41%	8.95%	9.35%	9.67%	8.31%	9.62%	8.23%	8.32%

Table 7. PCE Ratios FAO-Clean Dataset (Cont.)

Country	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Afghanistan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	17.15%	17.82%	16.71%	18.42%	17.33%	15.87%	20.92%	14.25%	13.01%	15.47%
Albania	15.95%	15.49%	16.31%	16.46%	19.09%	25.46%	33.53%	34.64%	30.70%	28.74%	28.84%	27.85%	26.35%	25.21%	22.92%	21.93%	22.12%	22.18%	22.51%	20.96%	21.09%	21.09%	20.94%	20.07%	20.50%	20.92%
Algeria	11.48%	11.68%	11.44%	14.11%	11.94%	12.80%	13.24%	13.15%	14.49%	14.03%	14.12%	12.47%	12.87%	12.32%	11.82%	11.82%	11.77%	12.19%	13.06%	12.46%	12.60%	12.56%	14.51%	14.48%	14.31%	17.46%
Angola	4.30%	4.86%	4.94%	5.39%	5.42%	5.11%	5.87%	6.73%	6.79%	6.43%	6.31%	5.95%	5.80%	4.93%	5.07%	5.40%	5.86%	6.20%	6.43%	6.15%	5.55%	5.09%	5.81%	5.55%	5.65%	6.77%
Antigua and Barbuda	9.74%	9.30%	9.41%	8.71%	8.78%	7.80%	8.16%	7.20%	6.61%	6.87%	6.35%	6.47%	5.83%	5.07%	4.96%	4.56%	4.66%	4.38%	4.18%	8.06%	5.00%	5.30%	5.81%	6.74%	7.10%	9.28%
Argentina	8.81%	8.72%	8.22%	7.64%	8.57%	8.42%	7.47%	7.29%	7.82%	7.44%	7.07%	5.41%	6.46%	7.94%	7.65%	8.38%	8.76%	8.25%	6.89%	7.16%	6.26%	5.37%	2.69%	2.50%	3.79%	1.30%
Armenia	--	--	--	--	--	--	40.03%	36.01%	38.53%	39.41%	41.28%	34.27%	32.91%	30.41%	27.64%	26.74%	23.12%	20.99%	22.40%	21.53%	19.13%	20.51%	20.74%	22.76%	21.07%	22.72%
Australia	2.08%	2.24%	2.21%	1.90%	1.76%	1.90%	2.30%	2.20%	1.65%	2.15%	1.71%	1.67%	2.19%	2.36%	2.14%	2.33%	1.73%	2.38%	1.52%	1.99%	1.33%	1.79%	1.61%	1.77%	1.44%	1.44%
Austria	3.41%	3.42%	3.38%	3.12%	3.13%	3.07%	3.00%	2.93%	3.01%	2.99%	2.79%	2.78%	2.65%	2.61%	2.32%	2.33%	2.20%	2.23%	2.27%	2.19%	2.03%	2.09%	2.01%	2.12%	2.05%	2.20%
Azerbaijan	--	--	--	--	--	--	15.39%	16.23%	18.20%	21.72%	24.92%	20.22%	19.54%	19.14%	18.93%	19.00%	18.05%	17.35%	16.43%	13.08%	10.34%	8.89%	8.93%	8.13%	8.16%	8.49%
Bahamas	5.21%	5.36%	5.23%	4.84%	4.52%	5.02%	4.50%	4.16%	4.30%	4.59%	4.73%	4.40%	4.22%	4.15%	5.25%	4.46%	3.10%	2.58%	2.95%	4.33%	4.60%	4.74%	5.04%	5.24%	4.21%	4.12%
Bahrain	5.14%	4.81%	4.49%	4.54%	4.40%	3.66%	3.92%	3.64%	3.53%	3.25%	2.82%	3.28%	1.89%	1.77%	2.97%	3.53%	3.45%	2.92%	2.72%	2.97%	2.12%	2.31%	2.69%	2.45%	3.15%	3.31%
Bangladesh	20.33%	20.13%	21.03%	21.48%	20.20%	19.56%	18.87%	17.95%	16.49%	17.44%	17.34%	16.51%	16.57%	19.37%	17.70%	16.35%	16.28%	16.48%	15.57%	15.99%	15.28%	15.80%	16.16%	16.08%	16.77%	16.81%
Barbados	5.84%	5.93%	5.73%	6.29%	5.93%	6.28%	5.50%	5.63%	5.57%	6.05%	5.15%	5.37%	3.78%	5.48%	4.58%	5.43%	5.37%	5.99%	5.10%	6.11%	5.74%	5.89%	6.32%	6.16%	6.68%	6.95%
Belarus	--	--	--	--	--	--	25.28%	26.59%	24.66%	27.33%	27.85%	23.63%	20.96%	19.42%	19.78%	17.90%	17.45%	16.68%	16.77%	14.88%	14.67%	13.67%	13.85%	12.84%	11.11%	9.63%
Belgium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.53%	1.38%	1.44%	1.40%	1.18%	--	--	--	--	--	--	--
Belize	8.14%	7.72%	6.79%	2.93%	2.47%	4.18%	7.01%	8.92%	6.16%	4.61%	5.44%	6.19%	6.58%	4.85%	6.59%	7.63%	9.22%	8.82%	8.37%	8.50%	7.32%	7.94%	8.34%	7.76%	9.39%	8.01%
Benin	15.53%	14.69%	17.14%	17.61%	18.82%	19.82%	22.35%	20.47%	19.37%	19.46%	18.85%	18.63%	18.66%	18.80%	17.48%	16.85%	17.81%	18.73%	19.09%	19.02%	21.06%	19.63%	22.41%	18.41%	16.39%	21.92%
Bermuda	3.23%	3.05%	2.81%	2.66%	2.51%	2.40%	2.99%	2.77%	4.19%	2.53%	2.37%	2.21%	2.06%	1.63%	1.48%	1.33%	1.35%	1.29%	1.26%	1.28%	1.65%	1.73%	2.01%	2.00%	1.85%	2.01%
Bhutan	68.22%	59.28%	45.12%	43.64%	45.73%	46.25%	43.84%	45.56%	44.66%	41.83%	43.02%	42.93%	39.45%	38.57%	24.83%	23.06%	20.05%	21.26%	24.44%	27.70%	25.84%	22.13%	19.85%	18.00%	18.95%	19.08%
Bolivia	16.31%	17.72%	16.31%	15.52%	13.43%	15.63%	15.10%	15.38%	14.65%	16.30%	14.94%	13.92%	13.86%	14.20%	14.80%	14.17%	14.24%	14.80%	12.41%	13.92%	13.47%	13.48%	13.05%	13.08%	12.49%	12.94%
Bosnia and Herzegovina	--	--	--	--	--	--	--	--	48.83%	40.31%	23.97%	21.23%	17.86%	14.84%	12.71%	14.22%	14.52%	13.10%	16.53%	17.12%	15.79%	15.53%	17.03%	16.30%	15.32%	16.37%
Botswana	1.42%	2.93%	3.46%	2.29%	3.49%	3.56%	4.29%	3.76%	3.48%	4.28%	4.23%	3.62%	3.33%	3.29%	3.35%	2.94%	2.75%	2.99%	2.10%	1.98%	2.18%	2.35%	2.80%	3.02%	2.72%	3.56%
Brazil	3.99%	4.04%	4.19%	4.56%	4.61%	4.98%	5.23%	5.11%	5.16%	5.43%	5.03%	5.14%	5.30%	5.59%	5.76%	5.71%	5.94%	6.31%	5.67%	5.25%	5.08%	4.87%	4.71%	4.78%	4.21%	3.75%
Brunei Darussalam	1.98%	2.30%	2.48%	2.28%	2.30%	2.26%	2.26%	2.28%	2.59%	2.43%	2.41%	2.82%	2.74%	2.06%	2.04%	2.02%	2.31%	2.43%	2.15%	2.18%	2.09%	1.88%	2.48%	2.48%	2.66%	2.84%
Bulgaria	20.52%	18.65%	17.17%	18.99%	17.37%	19.37%	17.62%	15.76%	14.85%	15.14%	14.38%	16.34%	15.19%	15.31%	13.86%	13.08%	10.43%	8.45%	9.87%	7.65%	7.76%	6.69%	7.62%	7.78%	7.21%	7.20%
Burkina Faso	36.95%	34.76%	38.87%	36.67%	35.30%	41.19%	41.23%	40.83%	39.76%	38.76%	39.73%	32.98%	34.56%	34.32%	28.78%	32.76%	31.15%	32.29%	27.45%	29.84%	28.84%	24.00%	29.25%	26.26%	28.08%	23.99%
Burundi	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cabo Verde	66.27%	--	79.67%	77.82%	74.21%	67.60%	74.11%	63.79%	50.73%	52.17%	43.85%	41.42%	38.40%	37.87%	30.31%	32.06%	29.28%	31.68%	30.45%	29.76%	29.51%	28.56%	29.48%	28.77%	28.08%	28.71%
Cambodia	--	--	--	--	--	--	--	47.92%	43.22%	47.04%	45.77%	44.37%	42.92%	42.71%	39.55%	36.97%	34.29%	35.92%	33.10%	36.82%	40.81%	37.75%	41.22%	43.11%	43.57%	49.12%
Cameroon	11.02%	11.09%	12.69%	13.64%	16.02%	17.85%	20.03%	21.71%	21.59%	20.93%	20.49%	20.39%	21.91%	21.66%	22.10%	21.86%	21.57%	21.14%	21.71%	24.85%	27.08%	29.01%	29.34%	30.16%	29.95%	31.74%
Canada	2.63%	2.42%	1.97%	2.35%	2.40%	2.41%	2.25%	2.52%	2.46%	2.32%	2.19%	2.18%	2.32%	2.34%	2.10%	1.86%	1.89%	2.02%	1.96%	2.01%	1.93%	1.82%	1.76%	2.02%	1.98%	1.90%
Central African Republic	20.23%	21.03%	22.46%	20.71%	25.17%	26.47%	28.73%	29.29%	28.75%	27.15%	32.11%	29.76%	31.16%	28.23%	32.42%	32.30%	31.31%	32.96%	33.07%	33.13%	31.60%	30.80%	30.74%	29.62%	27.54%	27.71%
Chad	11.13%	11.29%	11.40%	10.72%	11.99%	12.30%	11.69%	12.39%	11.19%	12.62%	13.51%	12.83%	14.74%	13.47%	12.72%	13.69%	12.60%	12.18%	8.70%	8.42%	8.26%	7.75%	8.36%	8.35%	7.77%	7.34%
Chile	4.54%	4.76%	4.74%	4.37%	4.25%	4.16%	3.90%	4.05%	4.06%	3.71%	3.49%	3.63%	3.46%	3.35%	3.49%	3.28%	2.99%	3.16%	2.99%	2.91%	3.04%	2.68%	2.67%	2.05%	2.14%	2.16%
China	47.44%	44.88%	41.28%	41.07%	42.87%	40.16%	36.81%	34.50%	32.16%	31.80%	30.89%	28.60%	28.09%	26.94%	25.52%	24.02%	22.90%	21.05%	20.50%	18.95%	17.29%	15.75%	15.36%	14.41%	13.43%	12.71%
Colombia	1.56%	4.37%	4.77%	5.22%	5.48%	5.33%	5.37%	5.83%	5.01%	5.50%	5.92%	5.07%	5.18%	6.12%	6.22%	6.75%	6.72%	6.76%	6.52%	5.80%	5.91%	5.88%	6.06%	5.60%	5.54%	5.37%
Comoros	3.99%	7.73%	6.23%	9.19%	10.30%	7.79%	9.71%	7.58%	12.99%	15.63%	15.24%	14.82%	14.60%	14.63%	10.73%	10.38%	12.14%	7.49%	8.74%	13.61%	13.34%	16.14%	17.67%	16.74%	19.79%	15.26%
Congo	10.23%	9.78%	10.72%	10.17%	9.84%	10.61%	11.19%	11.25%	10.82%	11.53%	11.78%	11.07%	11.43%	11.29%	11.27%	10.71%	10.95%	11.73%	12.55%	10.74%	11.18%	11.82%	11.71%	12.43%	10.83%	13.82%
Costa Rica	--	--	1.93%	4.71%	6.18%	5.29%	6.03%	5.67%	4.36%	1.47%	3.04%	2.81%	2.55%	4.45%	5.22%	6.46%	6.36%	5.66%	5.38%	5.27%	6.55%	5.25%	4.77%	4.82%	4.76%	5.65%
Côte d Ivoire	--	1.08%	6.73%	6.12%	10.53%	11.61%	13.60%	12.84%	13.13%	10.07%	7.92%	8.54%	7.77%	8.86%	13.21%	11.82%	6.85%	7.03%	9.82%	11.05%	12.64%	11.14%	10.17%	4.72%	4.65%	5.50%
Croatia	--	--	--	--	--	--	--	--	--	7.60%	7.22%	6.75%	6.27%	6.82%	5.83%	6.35%	6.39%	5.26%	5.89%	4.92%	5.07%	5.15%	5.80%	5.79%	5.40%	5.82%
Cuba	--	--	--	--	--	--	--	1.95%	1.78%	2.14%	1.66%	1.99%	2.77%	3.64%	3.61%	3.10%	3.63%	4.19%	4.33%	4.64%	3.60%	4.17%	5.19%	4.02%	3.58%	3.96%
Cyprus	7.54%	7.16%	7.75%	7.59%	6.66%	6.44%	7.06%	7.22%	6.66%	6.83%	7.31%	6.93%	6.78%	6.73%	6.45%	6.22%	6.34%	6.13%	6.33%	6.11%	5.89%	6.21%	6.67%	6.04%	6.03%	6.18%

Table 7. PCE Ratios FAO-Clean Dataset

Country	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Czech Republic	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dem. Rep. Congo	15.56%	13.29%	13.24%	12.72%	14.04%	13.30%	12.58%	12.31%	12.06%	12.49%	11.72%	11.69%	11.89%	12.82%	12.59%	12.69%	10.70%	11.69%	13.50%	13.46%	16.16%	15.13%	15.32%	14.07%	15.64%
Denmark	2.96%	2.96%	2.42%	2.36%	2.12%	2.09%	2.20%	2.44%	2.08%	2.12%	2.02%	1.68%	--	--	--	1.12%	1.57%	--	--	--	--	1.19%	1.43%	1.77%	1.64%
Dominica	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8.58%	8.28%	11.34%	15.84%	10.83%	9.10%	7.41%	8.96%	6.75%
Dominican Republic	7.75%	4.44%	4.79%	6.70%	11.79%	10.92%	9.14%	9.70%	10.04%	8.24%	8.24%	5.83%	5.32%	2.26%	--	4.22%	1.59%	5.41%	4.45%	5.77%	2.96%	6.16%	7.44%	6.85%	7.53%
Ecuador	7.57%	6.56%	6.71%	8.12%	7.28%	6.72%	6.28%	7.13%	7.65%	7.54%	6.86%	5.83%	4.95%	3.80%	4.68%	2.89%	--	--	--	2.98%	4.15%	6.56%	6.54%	6.27%	5.67%
Egypt	31.01%	35.26%	33.85%	30.78%	28.77%	30.56%	29.22%	26.90%	22.98%	22.73%	25.18%	24.79%	24.24%	37.06%	36.35%	30.47%	26.06%	28.83%	25.16%	27.18%	33.08%	28.11%	26.41%	26.49%	24.00%
El Salvador	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3.43%	1.35%
Equatorial Guinea	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4.02%
Eritrea	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Estonia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ethiopia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fiji	18.47%	17.58%	10.09%	9.83%	19.31%	20.76%	17.22%	17.52%	16.01%	15.74%	14.85%	12.24%	14.71%	6.23%	1.18%	8.67%	6.90%	8.59%	5.78%	--	6.44%	8.07%	8.66%	11.44%	12.42%
Finland	6.01%	5.84%	6.35%	5.84%	5.48%	5.24%	5.07%	4.91%	4.57%	4.49%	3.94%	3.76%	3.73%	3.86%	4.18%	4.00%	3.74%	3.83%	3.77%	3.86%	3.03%	3.38%	3.03%	2.87%	2.77%
France	8.54%	9.45%	8.32%	7.82%	7.81%	7.07%	7.07%	6.89%	5.94%	6.19%	5.51%	4.96%	5.16%	4.56%	4.62%	4.65%	4.50%	4.49%	4.60%	4.08%	3.78%	4.33%	4.05%	4.12%	4.05%
Gabon	4.45%	4.44%	4.36%	4.07%	4.00%	3.82%	3.70%	3.70%	3.39%	3.16%	2.89%	2.83%	2.65%	2.63%	2.64%	2.00%	2.56%	3.69%	3.48%	3.64%	3.70%	4.02%	3.53%	3.30%	3.53%
Gambia	--	--	--	--	--	54.49%	48.74%	51.14%	49.72%	49.94%	52.79%	48.18%	48.49%	46.12%	40.79%	45.49%	33.39%	46.47%	37.11%	42.39%	48.80%	50.28%	34.76%	37.37%	36.23%
Georgia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Germany	--	--	--	--	--	--	--	--	--	4.43%	4.27%	4.24%	4.33%	4.16%	4.19%	4.15%	4.17%	4.19%	4.02%	3.82%	3.44%	3.54%	3.40%	3.41%	3.25%
Ghana	30.10%	31.57%	28.38%	32.15%	27.43%	41.02%	35.85%	35.46%	33.21%	28.28%	37.75%	34.69%	31.07%	29.89%	23.84%	23.56%	7.99%	8.62%	12.76%	17.23%	33.07%	34.28%	43.11%	49.70%	45.36%
Greece	17.61%	13.47%	15.01%	13.02%	13.14%	12.81%	12.54%	11.58%	10.69%	10.88%	10.03%	9.56%	9.24%	10.74%	10.38%	8.96%	8.72%	8.72%	8.29%	9.22%	9.59%	10.12%	9.72%	9.56%	10.17%
Grenada	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3.96%	5.25%	6.40%	4.30%	6.19%	5.61%
Guatemala	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Guinea	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Guinea-Bissau	--	--	--	--	--	--	--	--	--	18.12%	20.90%	18.47%	24.67%	25.96%	19.99%	17.74%	17.71%	24.15%	17.85%	18.18%	21.10%	15.98%	15.67%	13.87%	12.44%
Guyana	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Haiti	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Honduras	12.12%	10.94%	11.33%	11.01%	4.07%	4.45%	7.08%	7.23%	10.62%	10.35%	9.25%	11.43%	9.31%	12.64%	10.01%	3.27%	--	--	--	--	2.73%	3.31%	3.97%	3.22%	2.03%
Hungary	18.41%	18.28%	17.41%	16.42%	11.24%	11.08%	10.14%	10.36%	9.55%	8.68%	9.26%	8.16%	6.82%	7.55%	7.06%	6.70%	7.13%	7.06%	6.17%	6.83%	6.32%	6.58%	6.95%	7.50%	7.26%
Iceland	9.16%	8.97%	8.28%	7.94%	7.87%	6.84%	7.21%	7.24%	6.61%	6.58%	5.94%	5.88%	6.03%	6.43%	6.38%	5.86%	5.46%	5.31%	5.07%	4.82%	4.49%	4.25%	4.24%	4.02%	3.97%
India	43.02%	41.31%	39.73%	38.29%	38.18%	38.60%	38.02%	38.27%	36.55%	36.08%	35.92%	34.40%	35.97%	34.61%	35.87%	34.96%	32.87%	32.49%	32.60%	31.66%	32.33%	31.30%	33.04%	32.57%	31.42%
Indonesia	29.74%	31.82%	30.13%	31.65%	28.81%	29.08%	27.96%	29.66%	27.94%	28.31%	26.44%	24.82%	26.48%	24.74%	22.99%	21.64%	19.56%	19.66%	18.42%	18.75%	19.49%	18.46%	18.22%	17.27%	16.99%
Iran	--	--	--	--	13.17%	12.19%	10.65%	10.52%	9.13%	8.68%	8.24%	7.75%	7.88%	9.82%	11.37%	8.81%	9.30%	9.40%	10.56%	12.82%	15.76%	14.30%	12.48%	12.86%	12.28%
Iraq	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ireland	--	--	--	--	--	--	--	--	--	6.90%	6.72%	5.37%	3.96%	4.91%	3.42%	3.77%	3.76%	2.35%	2.19%	2.44%	3.78%	4.63%	5.09%	5.24%	5.11%
Israel	6.83%	6.45%	5.78%	6.94%	5.80%	6.50%	5.89%	5.74%	5.03%	5.37%	5.10%	4.84%	5.61%	6.38%	6.01%	5.27%	5.16%	4.70%	4.92%	4.55%	4.39%	4.53%	4.56%	4.52%	4.00%
Italy	6.98%	6.49%	6.75%	6.67%	6.76%	6.67%	6.59%	6.02%	5.97%	5.72%	5.79%	5.47%	5.97%	5.50%	5.70%	5.09%	5.11%	5.15%	5.09%	5.18%	4.65%	4.55%	4.93%	4.33%	4.36%
Japan	10.93%	10.38%	9.81%	9.01%	8.53%	7.78%	7.39%	6.73%	5.81%	5.85%	5.37%	5.33%	5.12%	5.50%	5.46%	4.99%	5.11%	4.85%	4.76%	4.41%	4.23%	4.07%	3.94%	3.93%	3.69%
Jordan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	26.56%	27.60%	24.62%	24.39%	21.17%	19.05%	19.01%	19.94%	19.54%	18.25%	17.65%
Kazakhstan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Kenya	47.32%	43.37%	38.66%	37.05%	39.65%	31.62%	32.23%	32.38%	29.39%	32.00%	29.39%	24.31%	21.88%	22.49%	23.02%	18.73%	5.47%	13.40%	15.47%	16.71%	17.09%	21.83%	20.28%	15.62%	20.69%
Kiribati	--	--	--	--	--	--	--	--	--	16.68%	18.86%	16.18%	17.24%	14.85%	10.56%	15.15%	15.39%	17.27%	19.81%	36.17%	37.35%	31.75%	24.81%	30.76%	30.26%
Kuwait	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Kyrgyzstan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lao	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	45.00%	42.43%

Table 7. PCE Ratios FAO-Clean Dataset (Cont.)

Country	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Czech Republic	--	--	--	--	--	--	--	6.34%	5.72%	5.62%	5.83%	5.57%	5.51%	5.44%	4.85%	4.86%	4.73%	4.23%	4.71%	4.17%	3.83%	3.88%	3.95%	4.08%	3.86%	3.85%
Dem. Rep. Congo	12.96%	15.23%	16.10%	16.61%	19.14%	21.51%	25.00%	29.27%	30.45%	26.12%	26.30%	27.50%	27.30%	28.15%	30.36%	30.72%	30.18%	29.43%	29.04%	27.10%	27.89%	25.59%	24.91%	25.70%	23.72%	23.82%
Denmark	1.34%	--	--	--	--	--	--	--	--	--	--	--	--	1.13%	1.17%	1.07%	1.17%	1.08%	--	--	--	--	--	--	1.06%	1.03%
Dominica	1.40%	--	--	5.03%	3.27%	2.44%	2.09%	3.14%	4.74%	6.70%	8.48%	7.46%	6.07%	5.35%	7.79%	7.71%	8.18%	8.53%	8.16%	8.48%	7.84%	9.66%	9.23%	9.32%	9.30%	8.83%
Dominican Republic	7.46%	8.57%	8.27%	8.85%	8.23%	8.70%	8.90%	8.45%	7.65%	8.13%	7.84%	7.45%	6.89%	7.05%	6.84%	7.44%	7.45%	6.90%	6.85%	6.96%	6.94%	6.80%	6.73%	6.39%	6.12%	6.28%
Ecuador	4.52%	5.70%	6.45%	6.82%	6.70%	5.93%	7.05%	7.69%	6.63%	6.93%	7.37%	7.83%	7.91%	8.52%	9.89%	9.71%	9.25%	8.57%	9.07%	8.33%	8.33%	8.74%	8.53%	7.38%	8.17%	7.44%
Egypt	22.94%	20.76%	21.54%	20.66%	22.49%	21.11%	20.94%	20.39%	20.81%	21.79%	22.60%	21.92%	21.22%	21.05%	20.33%	18.81%	19.60%	18.98%	18.15%	18.84%	19.06%	19.51%	19.58%	17.29%	17.78%	18.74%
El Salvador	--	3.28%	3.60%	6.60%	5.80%	7.41%	8.17%	6.61%	6.06%	5.22%	6.36%	4.93%	5.93%	6.50%	7.08%	8.01%	8.37%	8.44%	8.86%	8.48%	8.82%	8.86%	9.69%	9.37%	8.67%	7.90%
Equatorial Guinea	5.57%	6.77%	7.96%	8.63%	11.13%	11.93%	10.83%	10.91%	8.34%	8.36%	6.07%	4.01%	2.82%	2.35%	1.90%	1.28%	1.20%	1.15%	--	--	--	--	1.03%	1.08%	1.12%	1.37%
Eritrea	--	--	--	--	--	--	--	53.64%	61.89%	51.16%	49.42%	46.48%	63.17%	51.28%	48.20%	47.44%	37.24%	48.21%	50.82%	59.04%	54.69%	62.91%	50.75%	56.64%	54.79%	55.87%
Estonia	--	--	--	--	--	--	--	10.27%	9.94%	10.26%	11.96%	9.68%	9.37%	8.14%	7.72%	7.10%	6.30%	6.81%	6.55%	5.63%	5.56%	5.28%	5.50%	6.58%	5.90%	5.43%
Ethiopia	--	--	--	--	--	--	--	34.77%	34.30%	35.09%	37.21%	34.09%	32.02%	34.99%	35.19%	37.83%	40.15%	47.29%	40.20%	39.36%	36.27%	32.29%	34.02%	33.83%	32.37%	28.79%
Fiji	11.18%	6.84%	8.64%	9.72%	11.28%	8.53%	11.07%	12.30%	11.14%	10.23%	8.88%	12.24%	12.26%	10.84%	12.54%	11.77%	12.31%	12.17%	13.02%	13.22%	13.64%	14.62%	14.65%	14.16%	15.96%	16.66%
Finland	2.95%	2.71%	2.76%	2.69%	2.61%	2.59%	2.57%	2.43%	2.48%	2.43%	2.48%	2.40%	2.22%	2.25%	2.08%	1.97%	2.03%	2.07%	2.01%	2.08%	1.93%	1.97%	2.12%	2.41%	2.20%	2.30%
France	4.03%	3.97%	3.46%	3.25%	3.11%	3.04%	3.14%	2.89%	2.86%	2.75%	2.85%	2.82%	2.79%	2.80%	2.72%	2.63%	2.67%	2.40%	2.55%	2.40%	2.27%	2.15%	2.15%	2.40%	2.25%	2.15%
Gabon	3.32%	4.11%	3.71%	3.25%	2.97%	3.29%	3.64%	3.37%	2.75%	3.16%	3.08%	2.87%	3.01%	3.05%	3.17%	3.08%	2.77%	2.42%	3.32%	3.48%	3.51%	3.84%	4.44%	4.50%	4.46%	4.91%
Gambia	39.36%	37.87%	38.18%	40.16%	36.63%	41.73%	36.87%	35.80%	34.65%	36.36%	30.21%	33.32%	29.50%	34.29%	32.54%	28.68%	24.70%	25.62%	37.59%	37.64%	36.99%	26.40%	26.80%	27.05%	33.57%	22.17%
Georgia	--	--	--	--	--	--	24.49%	32.56%	33.87%	44.87%	43.41%	39.07%	33.00%	32.43%	27.42%	27.70%	26.35%	26.37%	25.31%	24.70%	16.93%	18.40%	18.13%	14.67%	14.91%	16.01%
Germany	3.38%	3.27%	3.14%	2.92%	2.86%	2.61%	2.51%	2.24%	2.27%	2.32%	2.33%	2.18%	2.14%	2.09%	1.95%	1.89%	1.86%	1.84%	1.89%	1.80%	1.68%	1.63%	1.61%	1.71%	1.58%	1.60%
Ghana	43.59%	44.13%	45.88%	50.61%	41.01%	61.73%	60.20%	62.35%	57.61%	62.29%	57.27%	58.27%	60.96%	63.04%	60.56%	61.78%	64.95%	59.44%	58.22%	59.57%	53.82%	50.61%	54.23%	55.78%	55.40%	43.27%
Greece	9.32%	9.91%	10.06%	9.87%	8.68%	9.65%	9.52%	9.47%	9.87%	10.16%	9.79%	9.17%	8.73%	9.11%	8.60%	8.06%	7.95%	7.18%	7.51%	7.44%	6.86%	6.61%	6.88%	6.67%	6.31%	6.96%
Grenada	1.85%	--	1.38%	4.19%	5.88%	6.40%	6.53%	8.88%	8.47%	8.69%	10.33%	7.22%	6.74%	4.13%	3.83%	2.98%	4.94%	4.12%	7.19%	5.78%	6.76%	6.52%	6.90%	8.00%	7.79%	7.33%
Guatemala	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.61%	2.02%	1.98%	2.30%	1.54%	2.06%	1.51%	1.65%	--	--	--
Guinea	52.21%	51.71%	51.34%	51.74%	51.81%	52.80%	54.90%	53.94%	55.38%	54.89%	53.39%	52.20%	49.13%	48.92%	49.32%	48.14%	48.71%	51.55%	52.15%	52.99%	53.70%	56.37%	55.30%	54.85%	57.29%	55.98%
Guinea-Bissau	13.92%	15.89%	15.33%	15.17%	12.71%	12.30%	17.04%	13.70%	9.51%	11.60%	10.57%	7.23%	12.28%	8.98%	11.56%	10.57%	12.13%	13.41%	13.55%	8.06%	15.54%	13.73%	8.10%	13.03%	18.09%	--
Guyana	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Haiti	--	--	--	--	--	--	--	--	--	--	--	--	14.74%	14.01%	13.41%	13.01%	14.25%	14.35%	15.74%	15.87%	17.81%	17.44%	19.99%	18.45%	23.98%	18.54%
Honduras	--	2.77%	3.50%	4.32%	5.32%	8.11%	9.44%	10.88%	14.71%	11.56%	15.43%	14.90%	10.30%	15.25%	11.80%	13.70%	15.46%	16.64%	15.72%	16.12%	15.68%	15.15%	15.28%	15.09%	11.70%	8.86%
Hungary	7.10%	7.08%	7.06%	6.86%	6.46%	6.69%	5.14%	5.72%	5.66%	4.61%	5.37%	5.19%	5.12%	5.25%	4.77%	5.08%	4.46%	3.74%	4.91%	4.15%	3.92%	2.63%	3.29%	3.32%	2.33%	2.22%
Iceland	4.06%	3.69%	3.54%	3.28%	3.28%	3.51%	3.68%	3.37%	3.38%	3.46%	3.37%	3.25%	3.19%	2.99%	2.88%	2.78%	2.91%	3.02%	3.01%	2.97%	3.01%	3.21%	3.17%	3.02%	2.85%	3.16%
India	30.52%	28.99%	29.05%	28.98%	27.61%	27.84%	27.30%	26.96%	26.42%	24.51%	23.73%	23.36%	22.56%	21.91%	20.90%	20.59%	18.27%	18.55%	16.96%	16.25%	15.74%	15.20%	14.87%	13.85%	13.24%	12.73%
Indonesia	16.98%	16.63%	16.47%	16.34%	15.46%	14.64%	15.08%	14.12%	13.45%	14.80%	13.93%	12.36%	13.80%	14.35%	13.84%	13.68%	13.93%	14.37%	14.53%	13.81%	14.15%	14.00%	13.46%	13.58%	13.22%	13.61%
Iran	13.35%	13.75%	14.35%	15.80%	14.92%	13.52%	13.91%	14.43%	14.01%	15.32%	14.51%	14.66%	13.84%	13.50%	12.46%	12.77%	12.62%	12.03%	11.75%	11.83%	11.39%	11.03%	10.74%	11.73%	10.48%	10.38%
Iraq	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4.86%	4.46%	4.18%	5.45%	4.12%	5.46%	5.28%	4.87%	7.79%	6.68%	7.76%	7.45%
Ireland	4.65%	2.37%	1.64%	1.32%	2.18%	2.42%	--	--	--	--	1.06%	2.01%	2.13%	1.99%	1.43%	2.18%	1.90%	1.61%	--	--	--	1.00%	1.16%	1.60%	1.53%	1.26%
Israel	3.96%	3.75%	3.80%	4.01%	3.78%	3.46%	3.65%	3.56%	3.56%	3.61%	3.71%	3.57%	3.40%	3.32%	3.28%	3.28%	3.55%	3.41%	3.55%	3.39%	3.14%	3.10%	3.46%	3.10%	3.10%	3.30%
Italy	4.29%	4.39%	3.98%	4.01%	3.62%	3.97%	3.86%	3.58%	3.50%	3.39%	3.37%	3.28%	3.19%	3.29%	3.06%	2.89%	2.82%	2.86%	3.15%	2.99%	2.81%	2.76%	2.81%	2.99%	2.82%	2.91%
Japan	3.67%	3.51%	3.33%	3.21%	2.99%	2.81%	2.91%	2.81%	3.01%	2.93%	2.81%	2.67%	2.53%	2.59%	2.54%	2.42%	2.43%	2.34%	2.36%	2.36%	2.22%	2.24%	2.40%	2.48%	2.37%	2.53%
Jordan	15.97%	16.13%	16.82%	13.71%	22.04%	19.66%	18.58%	17.82%	16.58%	15.86%	15.47%	14.97%	14.98%	13.38%	13.95%	12.36%	12.63%	12.33%	13.87%	11.91%	11.66%	13.22%	14.86%	12.15%	12.43%	13.44%
Kazakhstan	--	--	--	--	--	--	17.93%	16.20%	16.84%	13.78%	11.81%	11.17%	10.11%	12.48%	10.65%	11.69%	10.98%	9.73%	9.20%	9.68%	9.14%	8.35%	7.11%	9.39%	7.44%	10.56%
Kenya	19.18%	20.31%	20.52%	22.85%	21.65%	23.00%	25.31%	21.88%	24.24%	20.97%	17.66%	21.47%	20.01%	23.09%	22.23%	25.08%	24.38%	24.28%	23.84%	27.14%	26.42%	24.68%	24.82%	27.36%	25.68%	27.08%
Kiribati	30.14%	35.84%	32.90%	30.31%	27.23%	32.30%	31.20%	29.66%	29.26%	38.27%	36.15%	30.35%	27.32%	28.53%	23.82%	22.10%	24.46%	23.37%	27.07%	39.76%	47.41%	62.35%	52.14%	37.34%	36.15%	43.12%
Kuwait	--	--	--	--	--	--	3.36%	2.70%	2.60%	2.59%	2.72%	2.58%	2.57%	2.47%	2.34%	2.23%	1.52%	1.43%	1.51%	1.62%	1.73%	1.85%	2.11%	1.99%	2.08%	2.36%
Kyrgyzstan	--	--	--	--	--	--	59.08%	57.33%	58.93%	58.49%	62.53%	59.46%	62.98%	64.40%	63.37%	62.63%	60.93%	58.41%	55.38%	55.42%	55.57%	53.76%	52.98%	51.63%	52.95%	52.61%
Lao	41.71%	40.36%	36.50%	37.21%	37.54%	34.71%	37.91%	34.72%	38.65%	31.16%	33.11%	34.26%	34.47%	36.80%	46.26%	45.21%	50.70%	45.32%	44.61%	45.51%	42.43%	42.72%	39.79%	41.58%	40.11%	39.55%

Table 7. PCE Ratios FAO-Clean Dataset

Country	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Latvia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lebanon	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lesotho	36.56%	33.07%	32.10%	28.05%	31.10%	27.66%	24.14%	23.10%	21.51%	25.12%	26.62%	25.95%	23.39%	24.71%	36.25%	37.74%	33.81%	32.72%	34.09%	38.91%	35.04%	35.97%	43.64%	36.56%	25.77%
Liberia	15.06%	16.02%	17.63%	14.17%	16.15%	14.11%	14.58%	14.05%	11.37%	13.59%	13.82%	12.08%	14.21%	15.22%	14.91%	14.31%	8.42%	11.55%	12.97%	13.68%	16.86%	16.06%	16.68%	17.05%	13.37%
Lithuania	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Luxembourg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Macedonia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Madagascar	23.15%	21.21%	25.65%	25.28%	26.12%	25.17%	24.95%	22.79%	25.74%	21.91%	22.04%	21.66%	21.78%	26.38%	19.81%	22.68%	16.63%	18.82%	19.38%	19.17%	30.74%	33.17%	33.20%	30.56%	34.10%
Malawi	70.91%	76.40%	75.95%	79.76%	73.80%	65.40%	71.23%	70.22%	69.73%	69.38%	69.32%	69.50%	71.35%	64.58%	60.12%	59.16%	59.06%	56.00%	50.83%	48.20%	53.79%	59.28%	48.08%	44.44%	45.07%
Malaysia	21.14%	19.27%	20.32%	19.82%	17.64%	16.03%	15.72%	15.43%	14.81%	14.73%	13.84%	13.88%	14.52%	16.46%	15.32%	13.37%	12.89%	13.40%	13.18%	13.57%	13.48%	13.35%	11.91%	11.58%	11.88%
Maldives	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mali	--	--	--	--	--	--	63.52%	60.51%	65.65%	62.98%	60.81%	53.24%	56.83%	69.96%	60.06%	48.91%	44.85%	49.76%	43.55%	49.37%	55.70%	63.07%	58.49%	53.72%	67.91%
Malta	--	--	--	--	--	--	--	--	--	22.01%	23.33%	22.49%	26.54%	27.71%	22.03%	17.70%	15.01%	13.87%	13.60%	15.52%	11.93%	11.14%	9.62%	9.05%	8.97%
Mauritania	9.44%	10.83%	10.18%	8.79%	8.19%	7.27%	8.13%	8.37%	7.83%	7.14%	7.74%	8.18%	14.14%	16.16%	17.72%	16.99%	18.46%	17.40%	15.42%	16.92%	16.29%	20.95%	22.62%	19.03%	18.38%
Mauritius	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3.09%	1.49%	6.38%	3.57%	--	12.20%	11.00%	5.55%	7.91%	9.19%
Mexico	4.94%	5.10%	5.03%	4.48%	4.42%	4.58%	4.37%	4.14%	4.01%	4.17%	4.13%	4.10%	4.06%	4.34%	4.47%	3.74%	4.01%	4.08%	3.68%	4.49%	4.42%	3.93%	4.49%	4.16%	4.13%
Moldova	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mongolia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	24.76%	25.28%	23.24%	21.20%	24.49%
Montenegro	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Morocco	--	--	--	--	--	24.07%	24.04%	28.42%	20.44%	21.18%	23.24%	21.14%	19.16%	24.71%	23.79%	19.93%	16.03%	18.16%	17.56%	17.98%	19.33%	19.00%	17.11%	17.65%	16.73%
Mozambique	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	51.08%	49.58%	53.64%	68.70%	75.81%	77.34%
Namibia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5.87%	4.16%	6.59%	7.26%	7.92%	8.30%
Nepal	36.67%	37.51%	38.17%	28.10%	33.27%	30.91%	30.93%	32.69%	38.03%	43.24%	40.00%	40.75%	41.43%	46.10%	46.25%	44.11%	45.10%	46.69%	44.13%	50.15%	47.65%	44.28%	55.89%	50.49%	47.33%
Netherlands	3.28%	3.23%	3.18%	2.96%	2.35%	2.55%	2.78%	2.48%	2.36%	2.19%	2.01%	1.72%	1.34%	1.65%	1.18%	1.15%	1.52%	1.31%	1.41%	1.44%	1.31%	1.76%	1.99%	2.28%	2.40%
New Zealand	--	--	--	--	--	--	--	--	--	3.06%	3.08%	1.91%	--	--	2.58%	3.00%	2.31%	2.43%	--	--	--	1.40%	1.44%	2.32%	3.53%
Nicaragua	6.96%	6.15%	5.21%	5.59%	5.16%	6.41%	6.16%	6.51%	5.80%	4.93%	5.12%	3.56%	4.11%	5.24%	4.49%	--	--	--	--	2.55%	6.07%	5.37%	5.87%	7.54%	7.69%
Niger	34.08%	34.18%	32.60%	32.97%	29.81%	32.75%	36.42%	32.03%	37.83%	34.25%	34.42%	36.06%	34.66%	40.41%	35.07%	41.01%	42.54%	42.38%	40.05%	43.61%	46.18%	44.28%	47.93%	41.89%	49.21%
Nigeria	58.82%	58.29%	56.90%	55.48%	55.48%	57.24%	69.50%	72.35%	64.90%	56.84%	45.85%	38.46%	38.60%	37.49%	40.64%	35.10%	33.47%	35.63%	34.93%	36.41%	42.98%	42.86%	44.07%	45.97%	45.11%
Norway	4.37%	4.49%	4.71%	4.36%	4.02%	3.95%	3.73%	3.75%	3.35%	3.42%	3.17%	3.12%	3.28%	3.52%	3.09%	3.17%	3.13%	3.07%	2.88%	3.00%	2.70%	2.63%	2.33%	2.29%	2.12%
Oman	6.13%	5.32%	5.34%	5.57%	5.79%	5.56%	3.54%	1.96%	1.66%	1.59%	1.89%	1.73%	3.41%	4.07%	4.13%	3.82%	4.40%	4.68%	5.30%	6.36%	5.77%	5.88%	5.14%	4.67%	4.07%
Pakistan	49.89%	48.14%	44.75%	44.25%	44.34%	38.16%	40.48%	42.72%	38.22%	35.65%	35.62%	36.85%	36.11%	34.90%	35.56%	34.33%	33.07%	31.82%	33.52%	28.61%	27.32%	27.51%	27.04%	25.61%	26.05%
Panama	11.22%	12.34%	11.59%	10.20%	8.57%	7.60%	6.47%	5.86%	5.35%	4.92%	6.01%	5.49%	6.00%	6.44%	4.35%	5.50%	5.89%	5.02%	5.49%	4.19%	4.35%	5.04%	4.78%	5.37%	5.75%
Papua New Guinea	37.84%	36.07%	34.28%	32.42%	30.15%	30.94%	28.77%	27.85%	25.33%	23.62%	23.05%	24.11%	22.47%	20.76%	20.77%	22.71%	8.06%	10.34%	11.13%	16.83%	24.17%	25.05%	22.00%	20.89%	21.81%
Paraguay	29.89%	29.44%	26.82%	27.64%	25.88%	27.33%	26.15%	25.52%	25.42%	24.86%	22.77%	18.85%	15.31%	17.42%	15.76%	19.53%	19.87%	18.84%	19.18%	17.18%	17.96%	18.59%	20.05%	20.18%	21.36%
Peru	5.73%	5.80%	5.43%	5.73%	6.50%	6.22%	6.19%	5.48%	6.17%	5.51%	5.64%	5.16%	4.40%	4.59%	4.42%	4.85%	4.14%	3.92%	3.72%	5.22%	5.95%	5.44%	6.08%	5.25%	4.81%
Philippines	16.96%	17.09%	16.13%	16.18%	17.42%	16.61%	16.99%	15.89%	16.39%	15.13%	14.99%	14.50%	13.48%	11.03%	12.77%	13.37%	12.12%	13.66%	13.27%	11.66%	12.49%	13.43%	12.65%	13.63%	15.03%
Poland	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Portugal	14.47%	16.04%	15.35%	14.55%	14.37%	11.32%	11.48%	10.64%	9.96%	9.96%	8.56%	8.09%	7.97%	9.64%	9.25%	8.04%	7.00%	6.79%	7.88%	7.22%	7.05%	6.91%	5.92%	6.29%	6.16%
Qatar	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Rep. Korea	35.18%	31.60%	33.77%	35.76%	33.38%	31.87%	28.16%	25.52%	26.37%	23.95%	22.62%	21.41%	20.23%	20.38%	21.04%	19.99%	19.24%	18.56%	18.18%	14.87%	17.07%	15.04%	14.23%	13.56%	12.87%
Romania	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	17.09%	18.24%	18.92%	17.43%	18.25%	17.14%
Russian Federation	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Rwanda	53.36%	67.33%	57.22%	58.28%	60.48%	64.79%	74.30%	66.77%	66.06%	64.75%	65.49%	64.96%	63.55%	61.02%	71.96%	57.24%	52.74%	56.03%	49.51%	54.52%	55.01%	57.87%	53.08%	51.71%	59.22%
Samoa	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	17.22%	14.31%	14.41%	15.29%
Sao Tome and Principe	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 7. PCE Ratios FAO-Clean Dataset (Cont.)

Country	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Latvia	--	--	--	--	--	--	14.04%	12.27%	10.32%	10.00%	10.09%	9.31%	10.08%	9.65%	9.39%	8.67%	9.23%	9.40%	7.29%	6.81%	6.02%	6.12%	6.57%	7.14%	6.67%	7.02%
Lebanon	--	--	11.77%	22.56%	18.32%	14.86%	15.23%	14.30%	14.27%	14.22%	13.01%	14.47%	12.91%	12.31%	11.97%	10.90%	10.99%	10.49%	10.69%	9.70%	9.62%	9.95%	9.98%	9.08%	9.04%	9.55%
Lesotho	25.82%	25.64%	28.63%	25.43%	24.40%	22.52%	21.66%	20.79%	18.17%	21.19%	20.86%	18.57%	17.98%	17.06%	14.48%	14.13%	14.49%	12.92%	11.92%	10.52%	11.47%	10.85%	13.12%	12.77%	9.59%	9.30%
Liberia	15.06%	15.93%	17.59%	27.47%	37.10%	56.37%	79.90%	--	--	--	--	68.71%	54.25%	43.11%	39.12%	27.29%	21.41%	33.31%	42.69%	45.90%	39.94%	34.07%	37.04%	34.11%	33.13%	26.76%
Lithuania	--	--	--	--	--	--	9.79%	11.60%	8.94%	8.41%	10.60%	10.06%	9.59%	9.12%	8.79%	6.63%	7.25%	6.66%	5.96%	5.21%	4.09%	3.94%	3.72%	4.38%	3.46%	3.58%
Luxembourg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.01%	1.88%	1.97%	2.19%	2.33%	2.13%	2.10%	2.14%	2.49%	2.41%	2.25%	2.25%
Macedonia	--	--	--	--	--	--	13.45%	13.56%	17.71%	17.77%	17.27%	19.17%	19.47%	16.19%	15.55%	14.70%	15.55%	15.48%	16.54%	14.73%	14.43%	17.89%	15.55%	15.73%	14.86%	14.94%
Madagascar	33.60%	31.83%	34.56%	34.54%	35.59%	38.29%	39.19%	39.80%	36.08%	38.38%	39.85%	40.77%	38.44%	37.37%	34.55%	30.16%	33.36%	33.23%	33.26%	40.34%	38.38%	36.91%	36.79%	40.31%	42.06%	40.45%
Malawi	49.57%	49.40%	52.16%	53.43%	47.74%	50.04%	47.23%	57.21%	53.64%	50.44%	54.17%	49.46%	59.14%	66.14%	--	--	73.18%	73.46%	74.29%	63.27%	--	--	--	--	--	--
Malaysia	11.72%	10.92%	11.28%	12.14%	11.37%	10.90%	10.61%	10.63%	9.86%	9.91%	9.64%	9.42%	8.92%	9.20%	8.62%	9.18%	8.67%	8.61%	8.76%	8.83%	8.92%	8.64%	8.90%	9.03%	8.83%	9.21%
Maldives	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9.72%	8.90%	8.54%	8.82%	9.49%	9.76%	10.53%	11.30%	9.78%	11.92%	12.67%
Mali	66.55%	63.71%	71.08%	64.50%	67.62%	73.08%	60.16%	63.07%	65.53%	63.11%	65.36%	61.56%	63.74%	61.70%	55.73%	53.59%	56.16%	59.30%	53.92%	59.71%	55.42%	60.98%	61.57%	67.76%	65.28%	64.12%
Malta	8.49%	9.07%	9.14%	8.75%	8.52%	8.39%	8.28%	7.28%	6.73%	7.88%	8.44%	7.58%	7.40%	6.72%	5.93%	5.84%	5.70%	6.26%	7.11%	6.69%	6.69%	7.48%	7.76%	7.34%	6.48%	7.46%
Mauritania	14.73%	15.93%	19.24%	19.97%	17.25%	17.50%	15.85%	13.59%	11.82%	11.66%	12.82%	14.52%	21.12%	13.88%	15.21%	17.08%	16.70%	17.23%	17.69%	12.29%	14.96%	15.44%	17.24%	18.96%	13.39%	13.25%
Mauritius	4.66%	2.35%	2.36%	4.10%	3.90%	4.60%	4.42%	5.39%	5.33%	5.27%	4.39%	6.67%	5.11%	4.68%	7.92%	6.62%	6.30%	6.44%	6.37%	6.07%	5.84%	6.94%	8.29%	8.55%	7.81%	7.33%
Mexico	3.95%	4.00%	4.05%	4.01%	4.24%	3.94%	4.11%	3.94%	3.93%	3.82%	3.90%	3.62%	3.71%	3.86%	3.77%	4.18%	4.23%	4.25%	4.12%	4.00%	3.93%	4.03%	4.11%	3.92%	3.83%	3.69%
Moldova	--	--	--	--	--	--	35.02%	38.18%	33.55%	35.17%	34.61%	34.43%	32.97%	33.60%	35.91%	36.38%	35.59%	33.53%	34.92%	31.31%	29.03%	22.83%	30.79%	25.48%	25.77%	26.60%
Mongolia	20.80%	21.15%	20.82%	22.57%	23.53%	27.36%	27.54%	29.06%	24.21%	23.62%	25.90%	24.37%	25.63%	25.83%	26.37%	21.97%	20.10%	17.58%	19.52%	16.97%	16.49%	17.21%	20.91%	21.19%	17.58%	18.43%
Montenegro	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	11.01%	12.98%	16.69%	15.92%	14.84%	16.04%
Morocco	17.90%	17.04%	18.96%	20.40%	18.12%	18.80%	16.55%	17.41%	18.79%	15.45%	19.53%	17.02%	17.50%	16.23%	15.80%	15.93%	16.53%	16.47%	17.06%	15.01%	16.50%	15.04%	16.34%	17.15%	16.57%	17.43%
Mozambique	75.19%	68.01%	64.20%	60.89%	61.90%	55.88%	56.15%	54.73%	48.33%	77.53%	75.43%	70.78%	67.90%	64.75%	61.92%	57.13%	52.55%	51.03%	50.21%	43.41%	39.72%	40.77%	40.51%	41.09%	45.64%	43.60%
Namibia	7.50%	5.87%	6.04%	6.15%	7.20%	6.20%	5.22%	5.77%	5.04%	5.33%	5.54%	9.83%	5.89%	8.91%	8.72%	7.45%	6.66%	6.65%	6.29%	6.61%	6.15%	6.07%	5.59%	5.02%	4.70%	4.93%
Nepal	45.10%	49.27%	50.18%	50.80%	50.46%	49.40%	46.85%	48.70%	45.51%	46.95%	44.35%	44.29%	45.87%	43.23%	43.12%	41.96%	41.91%	43.17%	43.47%	43.21%	42.73%	42.07%	41.76%	41.18%	41.57%	44.14%
Netherlands	1.93%	1.56%	1.71%	--	--	--	--	--	--	--	--	--	1.02%	1.05%	1.23%	1.23%	1.10%	--	--	--	--	--	--	--	--	--
New Zealand	3.22%	2.59%	2.26%	1.29%	1.57%	1.68%	1.45%	1.83%	2.07%	1.70%	1.46%	1.27%	2.51%	2.48%	2.32%	1.93%	2.04%	1.52%	--	--	--	--	--	--	--	--
Nicaragua	8.47%	7.89%	11.48%	10.49%	9.64%	12.42%	14.80%	14.04%	11.64%	10.79%	10.71%	9.68%	13.17%	12.92%	12.22%	13.40%	13.64%	14.74%	12.43%	12.73%	13.19%	11.55%	11.43%	11.31%	8.21%	8.78%
Niger	44.11%	43.34%	50.66%	46.21%	51.84%	51.79%	58.60%	55.97%	57.37%	55.19%	62.07%	56.68%	65.66%	62.16%	62.40%	68.47%	70.67%	70.75%	66.06%	73.41%	73.27%	72.57%	77.22%	63.81%	71.13%	60.02%
Nigeria	51.10%	58.60%	61.36%	62.83%	59.76%	67.78%	72.92%	76.56%	77.93%	--	79.01%	80.00%	--	--	--	77.99%	78.25%	74.94%	60.45%	61.15%	59.36%	52.66%	52.94%	43.51%	44.85%	44.01%
Norway	2.18%	2.19%	2.19%	2.17%	2.17%	1.95%	1.86%	1.85%	1.83%	1.79%	1.74%	1.60%	1.55%	1.54%	1.37%	1.36%	1.42%	1.48%	1.54%	1.52%	1.55%	1.70%	1.90%	1.74%	1.81%	1.93%
Oman	3.78%	3.75%	3.74%	3.29%	3.53%	3.35%	3.18%	3.04%	2.87%	2.94%	2.89%	2.50%	2.47%	2.49%	1.97%	2.29%	2.08%	2.23%	2.69%	2.31%	2.49%	2.96%	3.71%	2.89%	3.35%	3.13%
Pakistan	26.97%	25.52%	23.91%	25.49%	25.29%	24.19%	23.47%	25.36%	24.53%	25.01%	25.09%	25.18%	25.18%	24.56%	24.84%	23.25%	22.66%	22.28%	21.62%	21.39%	20.96%	20.77%	21.02%	21.10%	19.92%	19.93%
Panama	5.63%	5.70%	5.23%	6.40%	5.39%	6.21%	6.37%	6.28%	6.63%	7.30%	7.67%	7.47%	8.41%	7.66%	8.04%	8.72%	8.85%	8.77%	8.21%	7.77%	7.23%	7.63%	7.83%	7.67%	7.72%	7.67%
Papua New Guinea	16.68%	21.13%	22.76%	22.80%	27.03%	27.23%	24.95%	21.21%	17.53%	18.63%	19.66%	17.42%	18.77%	21.38%	23.04%	24.86%	24.23%	22.55%	22.95%	22.50%	24.53%	24.24%	24.54%	23.38%	21.03%	18.21%
Paraguay	17.41%	18.97%	19.28%	17.33%	16.71%	17.71%	18.57%	18.57%	18.61%	19.87%	19.21%	19.30%	20.04%	22.10%	20.63%	23.26%	25.04%	24.51%	21.89%	21.13%	20.25%	21.45%	18.16%	13.59%	21.26%	22.25%
Peru	4.91%	5.37%	6.15%	6.03%	6.52%	6.52%	6.70%	6.97%	6.48%	6.39%	6.90%	6.40%	6.73%	6.79%	6.87%	6.88%	6.73%	6.54%	6.08%	6.13%	5.81%	5.81%	5.77%	5.76%	5.34%	4.75%
Philippines	15.38%	14.95%	14.93%	15.37%	16.46%	16.02%	16.76%	16.95%	17.15%	17.35%	17.95%	16.77%	16.56%	16.69%	16.39%	16.33%	16.37%	15.99%	15.65%	15.24%	14.96%	15.22%	16.45%	15.52%	14.82%	14.07%
Poland	--	--	--	--	10.30%	10.42%	9.16%	9.92%	7.98%	8.18%	8.08%	6.84%	7.10%	6.53%	6.12%	6.01%	5.82%	5.24%	4.98%	4.37%	3.92%	4.04%	3.79%	3.89%	3.51%	3.27%
Portugal	6.06%	6.41%	5.20%	5.79%	6.29%	6.23%	5.92%	5.69%	5.94%	5.97%	6.11%	5.31%	5.03%	5.36%	4.79%	4.60%	4.65%	4.73%	5.25%	4.90%	4.90%	5.02%	5.25%	5.10%	5.22%	5.32%
Qatar	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.48%	1.45%	1.51%	1.43%	1.03%	1.32%	1.25%	1.29%	1.68%	1.35%	1.47%	--
Rep. Korea	11.95%	10.68%	10.47%	9.96%	8.88%	8.07%	8.15%	7.42%	7.06%	6.80%	6.89%	6.65%	6.67%	6.40%	6.04%	5.75%	5.18%	4.86%	4.88%	4.72%	4.54%	4.49%	4.86%	4.64%	4.19%	4.24%
Romania	16.03%	13.89%	14.53%	15.05%	16.05%	17.30%	17.77%	19.85%	17.61%	17.07%	15.77%	17.41%	17.13%	18.29%	15.60%	17.14%	15.50%	16.85%	17.03%	14.40%	13.76%	11.71%	12.50%	12.74%	11.84%	12.67%
Russian Federation	--	--	--	--	--	--	10.86%	10.82%	10.85%	10.98%	10.74%	10.75%	9.75%	8.76%	8.22%	8.39%	8.15%	7.70%	7.48%	7.24%	7.18%	6.62%	7.04%	7.36%	6.97%	7.71%
Rwanda	41.83%	44.55%	42.68%	47.10%	48.22%	59.07%	58.30%	50.19%	--	61.41%	61.05%	54.40%	56.21%	54.70%	61.58%	57.80%	62.01%	56.66%	52.01%	50.91%	47.46%	44.89%	40.13%	54.00%	54.85%	54.54%
Samoa	15.14%	14.98%	16.25%	14.99%	16.13%	14.47%	14.59%	15.51%	17.61%	17.82%	17.98%	15.15%	15.46%	13.83%	13.65%	12.92%	13.36%	13.82%	15.23%	14.64%	15.45%	15.40%	16.09%	20.42%	22.36%	20.54%
Sao Tome and Principe	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	13.71%	14.40%	13.57%	16.43%	16.83%	17.63%	20.01%	17.92%	20.45%	15.55%	18.35%

Table 7. PCE Ratios FAO-Clean Dataset

Country	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Saudi Arabia	--	--	--	--	--	--	--	2.81%	2.83%	2.66%	3.02%	1.94%	1.94%	1.95%	1.92%	2.14%	2.57%	3.33%	3.66%	4.20%	4.41%	5.10%	5.10%	5.83%	4.63%
Senegal	25.46%	25.97%	27.39%	27.46%	27.86%	25.55%	27.11%	21.78%	24.75%	16.57%	23.43%	14.84%	22.55%	28.51%	24.65%	22.00%	14.70%	23.58%	17.92%	19.58%	24.33%	18.18%	15.06%	16.08%	17.66%
Serbia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Seychelles	6.07%	6.28%	5.79%	5.77%	5.60%	6.06%	7.06%	5.18%	3.17%	4.55%	5.48%	5.32%	7.43%	9.56%	9.14%	8.40%	7.32%	8.16%	7.74%	9.04%	8.45%	8.96%	6.98%	7.11%	5.94%
Sierra Leone	15.68%	16.98%	18.25%	16.16%	17.14%	16.74%	18.60%	15.30%	14.51%	15.21%	13.67%	10.83%	13.37%	18.38%	11.55%	11.21%	6.24%	11.02%	10.30%	10.68%	12.43%	13.38%	10.81%	8.88%	8.86%
Singapore	13.74%	11.64%	11.85%	12.38%	12.00%	11.39%	9.33%	9.99%	9.21%	8.24%	7.86%	8.05%	9.10%	8.75%	8.09%	8.80%	7.43%	6.10%	6.60%	5.71%	5.46%	5.01%	5.21%	4.14%	4.15%
Slovakia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Slovenia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solomon Islands	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
South Africa	6.46%	5.60%	5.62%	5.26%	5.59%	5.85%	5.88%	4.76%	5.43%	4.93%	5.22%	4.78%	4.00%	3.91%	3.67%	4.20%	4.54%	4.49%	4.27%	3.50%	4.39%	4.38%	4.78%	5.32%	5.08%
Spain	7.46%	6.70%	7.41%	6.44%	6.26%	6.40%	5.66%	5.65%	5.24%	5.21%	5.18%	5.06%	5.25%	5.33%	5.33%	4.86%	4.67%	4.99%	5.06%	5.17%	4.60%	5.16%	4.81%	5.18%	4.98%
Sri Lanka	3.36%	2.42%	3.50%	14.98%	4.34%	10.25%	11.51%	12.45%	13.38%	15.53%	13.66%	13.99%	14.89%	20.30%	21.32%	13.99%	8.53%	9.40%	14.34%	16.90%	14.39%	11.95%	13.58%	6.36%	10.81%
St. Kitts and Nevis	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.50%	2.62%	1.23%	5.15%
St. Lucia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	13.63%	12.59%	13.39%	11.45%	8.18%	6.55%
St. Vincent and the Grenadines	5.54%	5.89%	7.09%	7.87%	7.30%	7.24%	8.52%	7.87%	8.59%	10.10%	13.33%	10.93%	10.15%	7.95%	12.51%	5.61%	6.50%	5.48%	8.97%	11.01%	3.98%	4.34%	--	--	--
Sudan	52.27%	49.05%	54.00%	54.67%	49.40%	51.37%	57.43%	51.48%	53.87%	54.42%	55.33%	58.35%	61.37%	60.52%	55.73%	47.27%	45.16%	50.75%	50.65%	56.96%	56.62%	44.92%	46.66%	43.80%	60.75%
Suriname	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4.64%	6.52%	6.91%	6.18%	5.04%	5.61%	7.75%	6.97%	7.19%	7.94%	6.03%
Swaziland	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sweden	3.86%	3.78%	3.69%	3.62%	3.43%	3.31%	3.24%	3.19%	2.77%	2.90%	2.71%	2.63%	2.75%	2.83%	2.71%	2.96%	3.16%	3.11%	3.04%	2.94%	2.67%	2.49%	2.33%	2.37%	2.18%
Switzerland	--	--	--	--	--	--	--	--	--	3.25%	3.19%	3.10%	3.50%	3.47%	3.66%	3.68%	3.63%	3.76%	3.73%	3.56%	3.32%	3.52%	3.23%	3.21%	3.04%
Tajikistan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tanzania	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thailand	--	--	--	--	35.58%	38.94%	30.72%	31.54%	32.34%	29.69%	27.73%	24.00%	25.05%	16.00%	19.29%	16.31%	14.29%	17.08%	14.25%	14.16%	12.04%	11.66%	14.59%	13.55%	15.77%
Timor-Leste	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Togo	42.42%	43.46%	45.66%	35.04%	34.19%	33.09%	31.80%	29.44%	24.49%	23.39%	26.74%	25.06%	25.68%	22.06%	23.36%	22.87%	18.46%	16.72%	24.26%	23.02%	27.08%	30.28%	30.27%	29.50%	29.05%
Tonga	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	22.14%	18.20%	17.38%	15.79%	16.15%
Trinidad and Tobago	6.46%	6.66%	5.76%	5.62%	6.31%	6.48%	6.08%	5.38%	5.74%	5.38%	5.49%	5.53%	6.08%	5.66%	4.74%	5.68%	6.00%	6.12%	6.25%	6.61%	6.85%	7.15%	7.71%	7.69%	6.80%
Tunisia	29.35%	27.45%	26.82%	25.59%	24.26%	20.96%	24.68%	20.80%	18.39%	20.62%	23.16%	19.17%	22.02%	23.15%	24.16%	20.67%	20.97%	19.34%	18.32%	20.73%	18.73%	16.27%	18.63%	16.67%	16.99%
Turkey	27.52%	26.44%	25.46%	23.59%	22.71%	22.27%	21.18%	20.81%	19.84%	20.61%	20.22%	18.91%	16.58%	17.95%	18.00%	16.90%	15.99%	16.26%	16.49%	17.38%	16.48%	16.84%	15.59%	16.29%	15.89%
Turkmenistan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tuvalu	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Uganda	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	14.16%	15.44%	12.86%	16.17%
Ukraine	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
United Arab Emirates	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.88%	1.86%	1.68%	1.88%	1.78%	1.75%	1.68%	1.78%	1.62%	1.58%	1.61%
United Kingdom	4.77%	4.96%	4.90%	4.76%	4.54%	4.35%	4.27%	3.87%	3.77%	3.78%	3.74%	3.63%	3.67%	4.02%	3.85%	3.43%	3.64%	3.40%	3.52%	3.43%	3.09%	3.09%	2.88%	2.86%	2.63%
United States of America	3.56%	3.36%	3.29%	3.13%	3.02%	2.87%	2.99%	3.00%	2.93%	2.83%	2.92%	2.70%	2.24%	2.24%	2.33%	2.34%	2.52%	2.27%	2.21%	1.99%	2.05%	2.32%	2.01%	2.16%	2.30%
Uruguay	11.83%	11.52%	11.44%	11.88%	9.72%	9.63%	10.02%	11.47%	10.41%	11.11%	9.87%	8.73%	8.37%	10.34%	8.64%	7.95%	6.63%	6.71%	6.79%	5.31%	4.90%	6.70%	6.90%	7.55%	8.20%
Uzbekistan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanuatu	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	32.76%	34.69%	34.01%	28.25%	25.85%	27.03%	24.69%
Venezuela	5.97%	5.59%	5.35%	5.46%	5.55%	5.54%	5.79%	5.38%	5.76%	5.67%	5.72%	5.87%	5.90%	6.45%	6.54%	6.34%	7.10%	6.64%	6.57%	7.81%	8.12%	8.11%	7.48%	7.38%	7.43%
Viet Nam	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	30.49%	29.51%
Yemen	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zambia	6.47%	6.07%	5.83%	5.48%	4.67%	6.08%	4.55%	6.05%	6.99%	6.67%	9.24%	7.29%	5.50%	6.56%	7.00%	5.95%	5.68%	5.01%	6.54%	8.91%	5.44%	5.21%	5.09%	5.12%	5.00%
Zimbabwe	6.77%	5.71%	7.20%	6.50%	2.69%	5.34%	3.73%	2.95%	3.64%	2.74%	3.72%	2.48%	--	--	--	--	--	--	--	1.99%	1.69%	1.58%	1.56%	4.29%	4.36%
World Total	7.12%	6.95%	6.81%	6.46%	6.28%	6.06%	6.05%	5.85%	5.57%	5.35%	5.21%	5.51%	5.40%	5.53%	5.64%	5.26%	5.24%	5.26%	5.20%	5.18%	5.16%	5.34%	5.16%	5.19%	5.11%

Table 7. PCE Ratios FAO-Clean Dataset (Cont.)

Country	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Saudi Arabia	4.18%	4.59%	4.30%	4.15%	3.96%	3.79%	3.64%	3.39%	3.36%	3.80%	3.81%	3.81%	3.63%
Senegal	16.98%	16.96%	15.94%	18.55%	18.95%	15.96%	15.41%	15.90%	15.37%	17.53%	16.65%	13.89%	14.23%
Serbia	--	--	--	--	--	--	--	--	--	--	--	--	--
Seychelles	6.41%	6.62%	6.86%	6.40%	6.32%	5.77%	6.62%	5.98%	5.88%	6.57%	6.97%	6.95%	5.45%
Sierra Leone	12.35%	10.97%	13.54%	15.60%	15.76%	14.51%	17.66%	17.25%	21.55%	22.48%	26.55%	24.41%	23.27%
Singapore	3.64%	3.29%	3.09%	2.89%	3.09%	2.86%	2.81%	2.66%	1.98%	1.83%	2.01%	1.75%	1.31%
Slovakia	--	--	--	--	--	--	--	6.94%	6.18%	5.55%	5.92%	5.62%	5.20%
Slovenia	--	--	--	--	--	--	3.77%	4.82%	5.09%	5.29%	5.28%	4.83%	4.57%
Solomon Islands	--	--	--	--	17.29%	17.37%	16.00%	14.90%	14.65%	14.23%	14.93%	15.56%	13.81%
South Africa	4.89%	5.16%	5.19%	4.88%	5.05%	5.25%	5.15%	5.45%	5.27%	4.83%	5.19%	5.07%	4.73%
Spain	4.75%	4.73%	4.29%	4.37%	4.49%	4.22%	4.22%	4.02%	3.78%	3.35%	3.92%	3.90%	3.73%
Sri Lanka	12.36%	9.21%	10.75%	11.59%	9.66%	9.42%	10.34%	10.40%	10.68%	10.38%	8.28%	6.85%	6.21%
St. Kitts and Nevis	2.47%	1.32%	3.16%	2.49%	4.25%	4.07%	2.40%	3.18%	2.67%	2.86%	4.61%	2.49%	3.63%
St. Lucia	--	--	--	3.74%	--	4.62%	3.45%	6.15%	7.40%	7.03%	6.82%	9.73%	8.78%
St. Vincent and the Grenadines	--	--	--	--	--	--	--	--	--	--	2.60%	3.82%	2.26%
Sudan	54.23%	42.02%	51.96%	40.67%	41.32%	49.87%	50.13%	42.93%	51.51%	47.71%	50.17%	46.47%	48.39%
Suriname	7.39%	8.15%	7.88%	9.41%	11.10%	12.37%	12.05%	11.94%	10.79%	11.03%	10.82%	10.73%	13.25%
Swaziland	--	--	--	--	--	--	--	--	--	--	--	--	--
Sweden	2.35%	2.22%	2.31%	2.24%	2.29%	2.18%	2.21%	2.32%	2.29%	2.13%	2.15%	2.05%	1.98%
Switzerland	3.11%	3.01%	3.04%	2.86%	2.77%	2.75%	2.80%	2.66%	2.60%	2.62%	2.66%	2.43%	2.47%
Tajikistan	--	--	--	--	--	--	42.70%	43.21%	46.48%	51.34%	50.61%	51.62%	45.03%
Tanzania	--	--	13.59%	13.65%	13.65%	14.43%	14.51%	13.67%	12.79%	13.12%	12.67%	12.75%	15.09%
Thailand	13.18%	12.13%	10.91%	8.76%	8.36%	8.65%	8.25%	8.56%	7.98%	6.77%	6.48%	7.04%	8.18%
Timor-Leste	--	--	--	--	--	--	--	--	--	--	--	--	--
Togo	28.67%	27.66%	32.38%	33.77%	33.77%	33.36%	35.33%	48.23%	42.14%	39.58%	37.79%	32.65%	33.21%
Tonga	15.46%	14.96%	17.28%	14.61%	13.50%	7.77%	10.70%	11.75%	12.15%	11.20%	13.84%	13.99%	15.08%
Trinidad and Tobago	6.17%	5.95%	4.65%	4.38%	4.33%	4.27%	4.33%	3.71%	3.29%	3.42%	3.42%	3.17%	3.18%
Tunisia	16.54%	16.29%	15.50%	16.81%	17.38%	18.08%	15.65%	16.50%	13.00%	14.19%	17.75%	13.68%	15.06%
Turkey	16.15%	14.23%	14.57%	14.06%	14.01%	13.43%	12.72%	11.97%	12.47%	11.70%	11.89%	10.49%	11.38%
Turkmenistan	--	--	--	--	--	--	43.89%	50.08%	61.39%	65.31%	48.39%	55.17%	61.78%
Tuvalu	--	--	--	--	7.73%	10.42%	10.03%	7.96%	9.42%	10.34%	11.40%	10.41%	8.66%
Uganda	13.79%	21.49%	23.51%	25.11%	30.00%	29.95%	29.86%	28.26%	24.76%	19.65%	15.68%	18.39%	19.72%
Ukraine	--	--	--	--	--	--	18.47%	21.52%	22.05%	23.09%	24.31%	25.68%	23.66%
United Arab Emirates	2.01%	2.08%	2.04%	2.17%	1.65%	1.59%	1.76%	1.66%	2.03%	2.00%	1.98%	1.65%	1.76%
United Kingdom	2.65%	2.58%	2.56%	2.42%	2.56%	2.51%	2.54%	2.24%	2.10%	2.03%	2.04%	1.95%	1.94%
United States of America	2.24%	2.12%	1.78%	1.82%	1.90%	1.88%	1.91%	1.74%	1.92%	1.70%	1.70%	1.76%	1.73%
Uruguay	6.66%	7.10%	7.17%	6.29%	4.94%	5.87%	7.09%	6.26%	6.69%	6.09%	6.22%	5.40%	4.82%
Uzbekistan	--	--	--	--	--	--	22.71%	18.93%	20.44%	20.23%	20.63%	14.99%	15.10%
Vanuatu	24.27%	24.37%	23.41%	21.69%	23.29%	20.29%	20.64%	19.94%	17.00%	18.02%	19.84%	20.28%	20.74%
Venezuela	6.95%	7.26%	7.87%	7.34%	6.88%	6.74%	6.70%	6.76%	6.64%	6.70%	6.97%	6.80%	7.40%
Viet Nam	27.93%	28.24%	28.66%	26.01%	24.97%	24.92%	23.81%	23.92%	22.09%	20.54%	19.22%	17.85%	17.43%
Yemen	--	--	--	--	24.83%	22.54%	25.20%	25.10%	21.19%	20.09%	22.77%	17.10%	18.29%
Zambia	4.35%	4.38%	5.35%	5.23%	5.11%	4.65%	6.60%	5.73%	5.25%	5.37%	5.44%	5.03%	7.05%
Zimbabwe	2.51%	--	2.61%	3.19%	2.12%	2.72%	8.57%	6.03%	--	--	3.17%	2.26%	2.32%
World Total	5.05%	4.96%	4.77%	4.79%	4.83%	4.81%	5.11%	5.01%	5.00%	4.81%	4.95%	4.80%	4.58%

Country	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Saudi Arabia	3.63%	3.70%	3.56%	3.71%	3.71%	3.54%	3.76%	3.64%	3.86%	4.03%	3.35%	3.87%	3.87%
Senegal	16.61%	14.60%	14.71%	11.25%	15.01%	15.04%	16.22%	13.53%	15.73%	24.07%	17.54%	17.37%	15.13%
Serbia	--	--	--	--	--	--	--	12.76%	10.61%	12.00%	11.63%	10.61%	10.18%
Seychelles	4.70%	5.06%	3.43%	4.22%	5.92%	4.34%	5.99%	6.96%	6.30%	5.51%	4.64%	4.50%	4.72%
Sierra Leone	20.96%	17.52%	22.48%	22.12%	21.66%	17.82%	16.82%	19.63%	16.75%	20.20%	19.03%	19.96%	21.85%
Singapore	1.49%	1.33%	1.51%	1.29%	1.27%	1.14%	1.10%	1.02%	1.17%	1.30%	1.12%	1.19%	1.20%
Slovakia	4.82%	4.30%	4.38%	4.17%	3.77%	4.01%	3.75%	3.27%	3.10%	3.69%	3.47%	3.15%	2.97%
Slovenia	4.45%	4.03%	3.80%	3.93%	3.90%	4.14%	3.96%	3.67%	3.80%	3.92%	4.07%	3.82%	4.21%
Solomon Islands	14.04%	16.49%	19.13%	19.43%	18.61%	21.19%	24.52%	25.08%	23.39%	25.00%	22.77%	27.67%	22.94%
South Africa	4.96%	5.29%	4.80%	5.00%	4.75%	4.78%	4.62%	4.53%	4.62%	4.92%	4.77%	4.62%	4.56%
Spain	3.63%	3.66%	3.48%	3.46%	3.47%	3.27%	2.91%	2.96%	2.94%	2.82%	2.88%	2.81%	2.89%
Sri Lanka	6.81%	6.38%	6.37%	6.32%	6.20%	5.73%	5.23%	7.21%	7.05%	5.29%	4.64%	4.67%	4.61%
St. Kitts and Nevis	3.47%	6.68%	5.53%	4.85%	5.41%	4.75%	4.85%	6.16%	6.51%	6.11%	6.78%	6.30%	5.20%
St. Lucia	7.03%	8.33%	8.15%	7.07%	8.44%	8.54%	8.39%	8.29%	8.47%	8.07%	3.98%	7.65%	7.73%
St. Vincent and the Grenadines	--	--	4.05%	4.54%	5.08%	5.37%	5.65%	5.62%	7.27%	8.95%	8.09%	9.53%	8.70%
Sudan	47.22%	47.94%	49.84%	47.49%	49.39%	48.00%	47.65%	45.50%	40.00%	39.73%	38.70%	36.69%	4.37%
Suriname	10.69%	9.78%	10.35%	8.86%	8.52%	9.49%	9.27%	9.89%	10.35%	9.00%	9.43%	9.44%	10.55%
Swaziland	1.02%	--	--	2.96%	3.19%	3.77%	5.00%	--	3.81%	2.67%	3.81%	2.99%	2.10%
Sweden	1.89%	1.71%	1.68%	1.71%	1.78%	1.82%	1.72%	1.67%	1.76%	1.90%	1.90%	1.75%	1.86%
Switzerland	2.27%	2.23%	2.12%	2.20%	2.21%	2.20%	2.09%	2.03%	2.00%	2.07%	2.05%	1.94%	2.02%
Tajikistan	45.90%	50.66%	44.32%	46.58%	44.78%	47.30%	50.10%	50.98%	47.40%	49.69%	56.18%	55.30%	54.62%
Tanzania	12.74%	12.39%	13.14%	15.60%	12.72%	14.30%	12.74%	13.92%	12.86%	11.18%	11.22%	12.04%	12.64%
Thailand	8.28%	9.41%	9.44%	9.09%	8.49%	6.62%	6.94%	6.64%	6.45%	4.68%	4.95%	4.62%	3.39%
Timor-Leste	16.41%	16.25%	15.79%	16.21%	16.72%	15.12%	13.34%	14.81%	14.81%	11.91%	13.12%	10.79%	11.66%
Togo	32.73%	32.95%	36.48%	37.42%	36.39%	36.20%	37.25%	40.61%	34.22%	41.24%	34.44%	37.44%	44.17%
Tonga	11.86%	13.10%	13.26%	12.09%	10.80%	13.76%	14.79%	14.54%	18.34%	16.66%	16.30%	17.65%	16.00%
Trinidad and Tobago	2.96%	2.87%	3.07%	2.90%	2.66%	2.61%	2.60%	2.32%	2.64%	3.04%	2.98%	3.10%	3.83%
Tunisia	14.49%	12.63%	11.58%	11.39%	13.54%	11.92%	11.62%	12.05%	12.16%	12.17%	10.22%	10.21%	11.01%
Turkey	11.21%	11.27%	10.71%	11.00%	10.30%	9.44%	8.90%	8.81%	8.17%	8.27%	8.61%	8.22%	7.97%
Turkmenistan	64.61%	66.75%	69.92%	--	--	--	--	73.97%	75.18%	63.02%	63.50%	54.19%	43.86%
Tuvalu	8.20%	9.24%	8.37%	15.98%	13.33%	18.57%	22.69%	16.56%	13.67%	14.56%	16.29%	16.35%	11.16%
Uganda	19.54%	22.46%	23.26%	22.23%	23.58%	21.10%	19.48%	17.32%	15.86%	13.75%	13.90%	13.14%	11.86%
Ukraine	21.59%	23.98%	22.05%	20.95%	19.52%	18.38%	17.53%	17.34%	15.29%	16.42%	18.23%	18.39%	19.67%
United Arab Emirates	1.88%	1.72%	1.63%	1.91%	1.75%	1.91%	--	2.08%	2.27%	2.96%	3.04%	3.03%	3.59%
United Kingdom	1.91%	1.73%	1.66%	1.71%	1.76%	1.83%	1.82%	1.82%	1.87%	1.99%	1.95%	1.91%	1.99%
United States of America	1.73%	1.69%	1.63%	1.61%	1.61%	1.64%	1.57%	1.54%	1.50%	1.44%	1.58%	1.52%	1.40%
Uruguay	6.99%	7.02%	6.55%	7.46%	6.76%	5.88%	5.55%	4.94%	4.23%	1.57%	2.61%	4.35%	4.22%
Uzbekistan	13.09%	12.21%	10.68%	11.23%	10.65%	10.14%	10.47%	9.96%	10.67%	12.34%	10.93%	10.30%	10.58%
Vanuatu	17.75%	15.73%	16.77%	16.16%	15.92%	16.28%	16.11%	15.27%	16.53%	16.93%	15.49%	19.11%	18.89%
Venezuela	8.13%	8.33%	8.46%	8.81%	9.91%	8.47%	8.15%	8.16%	8.86%	9.99%	9.16%	8.57%	8.11%
Viet Nam	18.40%	19.41%	19.83%	20.97%	20.80%	19.68%	18.90%	18.30%	17.79%	16.18%	16.90%	16.52%	15.29%
Yemen	17.07%	17.19%	17.15%	17.36%	17.51%	17.03%	17.19%	18.26%	21.88%	23.24%	22.45%	22.34%	26.11%
Zambia	4.74%	4.60%	4.44%	5.07%	5.71%	3.84%	3.73%	4.98%	2.70%	3.13%	3.65%	3.42%	2.43%
Zimbabwe	3.46%	3.66%	5.07%	5.77%	7.38%	11.32%	6.78%	23.10%	11.22%	15.55%	20.08%	21.56%	20.83%
World Total	4.56%	4.40%	4.48%	4.44%	4.48%	4.52%	4.47%	4.39%	4.32%	4.44%	4.54%	4.41%	4.38%

APPENDIX III

Table 8. PCE-to-FCE Scalars OECD Dataset

Region	Country	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
OECD Total	OECD	1.16	1.22	1.27	1.33	1.36	1.39	1.37	1.37	1.40	1.61	1.58	1.64	1.71	1.74	1.77	1.85	1.81	1.83	1.87	1.97	1.96	1.90	1.93	1.86	1.82
AFRICA	South Africa															4.26	3.29	3.29	3.45	3.92	5.31	4.02	3.64	3.60	2.67	2.05
ASIA	India																									
	Israel																									
	Japan																									
	Rep. Korea										0.55	0.57	0.59	0.63	0.75	0.68	0.81	0.85	0.96	1.08	1.21	1.02	0.99	0.90	0.85	0.81
	Turkey																									
EUROPE	Austria																2.52	2.40	2.33	2.28	2.20	2.32	2.17	2.36	2.29	2.34
	Czech Republic																									
	Denmark						3.25	3.12	2.59	2.93	3.00	3.11	3.90				7.63	5.61					5.14	3.83	2.75	2.79
	Estonia																									
	Finland															1.80	2.02	2.32	2.22	2.12	2.02	2.58	2.43	2.75	2.96	3.06
	France	0.88	0.81	0.95	1.00	0.99	1.07	1.05	1.05	1.19	1.10	1.21	1.37	1.29	1.47	1.52	1.53	1.63	1.64	1.58	1.79	2.01	1.84	2.07	2.12	2.20
	Germany																									
	Greece																									
	Hungary																									
	Iceland																									
	Ireland																									
	Italy										0.66	0.65	0.69	0.66	0.76	0.79	0.96	1.05	1.09	1.13	1.17	1.38	1.56	1.53	1.79	1.83
	Luxembourg																									
	Netherlands																				5.47	5.80	4.24	3.64	3.02	2.85
	Norway										1.93	2.08	2.20	2.37	2.22	2.72	2.52	2.65	2.67	2.79	2.69	2.55	2.39	2.37	2.11	2.24
	Poland																									
	Portugal																									
	Russian Federation																									
	Slovakia																									
	Slovenia																									
	Spain																									
	Sweden																				3.86	3.63	3.29	3.00	2.80	2.96
	Switzerland																									
	Ukraine																									
LATIN AMERICA AND THE CARIBBEAN	Chile																									
	Colombia																									
	Mexico																									
NORTHERN AMERICA	Canada																					3.30	3.31	3.54	3.19	2.50
	United States of America										3.05	2.79	2.93	3.52	3.68	3.55	3.38	3.03	3.26	3.33	3.71	3.42	3.03	3.32	2.93	2.66
OCEANIA	Australia	2.41	2.33	2.17	2.78	2.84	2.20	3.01	2.10	2.12	2.28	2.43	3.16	4.48			6.45	5.23	3.62	4.37				2.93	3.40	3.21
	New Zealand																									

Table 8. PCE-to-FCE Scalars OECD Dataset

Region	Country	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OECD Total	OECD	1.84	1.88	1.98	1.98	2.00	2.05	1.88	1.89	2.22	2.33	2.17	2.08	2.11	2.13	2.06	2.00	2.05	2.29	2.51	2.55	2.57	2.73	2.88	2.74	2.76	2.89
AFRICA	South Africa	2.52	3.01	2.98	3.04	3.40	3.54	4.06	3.51	3.65	4.15	3.34	3.41	3.23	2.77	2.29	2.09	1.82	2.78	3.32	3.49	3.46	3.40	2.94	3.21	3.81	4.01
ASIA	India																			1.17	1.23	1.21	1.39	1.39	1.40		
	Israel																					2.82	3.03	3.37	3.47	3.63	3.57
	Japan									4.32	4.67	3.94	3.58	3.61	4.00	3.98	3.61	3.39	3.59	3.65	3.30	3.11	2.89	3.05	3.41	3.62	3.57
	Rep. Korea	0.81	0.92	1.03	1.20	1.30	1.38	1.23	1.28	1.38	1.41	1.30	1.14	0.81	1.04	1.12	1.01	1.12	1.22	1.24	1.38	1.46	1.48	1.21	1.14	1.41	1.50
	Turkey													1.58	1.46	1.37	1.13	1.23	1.65	1.96	2.26	2.17	2.63	2.83	2.48	2.86	2.75
EUROPE	Austria	2.20	2.15	2.13	2.25	2.18	2.22	2.27	2.30	2.18	2.04	2.13	2.09	2.12	2.04	1.93	1.88	2.07	2.42	2.59	2.62	2.72	2.82	3.16	2.92	2.86	2.77
	Czech Republic								1.03	1.16	1.27	1.28	1.24	1.33	1.27	1.24	1.25	1.46	1.75	1.69	1.84	2.00	2.16	2.61	2.23	2.31	2.52
	Denmark	4.29													4.51	3.66	3.90	3.77	4.77							5.57	6.01
	Estonia										0.84	0.82	1.07	1.03	1.16	1.02	1.10	1.32	1.41	1.68	1.94	1.93	2.23	2.75	2.24	2.18	2.42
	Finland	2.89	3.06	2.88	2.83	2.86	3.07	3.16	3.32	3.15	2.92	2.59	2.52	2.62	2.57	2.31	2.41	2.43	2.86	3.06	2.87	3.01	3.17	3.35	3.09	3.08	3.16
	France	2.21	2.22	2.44	2.54	2.61	2.65	2.48	2.67	2.63	2.69	2.55	2.53	2.52	2.44	2.14	2.19	2.29	3.07	3.07	3.15	3.26	3.66	4.01	3.49	3.53	3.82
	Germany						2.67	2.79	3.09	2.97	2.87	2.79	2.87	2.88	2.88	2.60	2.61	2.74	3.24	3.34	3.40	3.50	3.78	4.17	3.94	3.97	4.10
	Greece																				1.58	1.57	1.80	1.92	1.97	2.07	2.05
	Hungary										2.09	1.68	1.62	1.57	1.40	1.35	1.34	1.70	2.37	1.93	2.20	2.21	4.04	3.57	3.03	4.14	4.60
	Iceland					2.81	2.65	2.74	2.42	2.20	2.28	2.25	2.20	2.23	2.32	2.15	1.86	1.95	2.03	2.12	2.18	1.98	2.02	1.69	1.53	1.73	1.69
	Ireland											5.09	2.38	2.12	2.07	2.54	1.63	1.90	2.55				4.47	4.30	2.89	2.75	3.54
	Italy	1.88	1.81	1.94	1.93	2.15	1.99	2.11	2.26	2.31	2.39	2.42	2.46	2.52	2.41	2.21	2.24	2.44	2.93	2.87	2.96	3.12	3.40	3.59	3.34	3.30	3.31
	Luxembourg															1.58	1.66	1.70	1.64	1.61	1.66	1.65	1.71	1.63	1.66	1.64	1.74
	Netherlands	3.40	4.00	3.49										4.80	4.52	3.25	3.21	3.90									
	Norway	2.60	2.93	3.00	2.81	3.09	3.33	3.61	3.07	3.02	3.39	3.28	3.17	3.11	3.08	3.03	2.93	3.15	3.44	3.35	3.47	3.38	3.37	3.27	3.42	3.45	3.50
	Poland										1.84	1.93	1.98	1.82	1.70	1.74	1.94	1.98	2.16	2.42	3.01	3.36	3.53	4.34	3.31	3.73	3.96
	Portugal										1.55	1.50	1.68	1.82	1.70	1.61	1.69	1.78	2.15	2.10	2.18	2.21	2.34	2.48	2.40	2.19	2.30
	Russian Federation																			1.71	1.92	2.19	2.72	3.14	2.82	3.34	3.35
	Slovakia										1.65	1.48	1.69	1.87	2.08	2.05	1.99	2.19	2.80	2.75	2.73	3.01	3.40	3.10	3.25	3.22	3.53
	Slovenia										1.16	1.23	1.42	1.58	1.64	1.59	1.71	1.79	2.20	2.18	2.13	2.19	2.32	2.47	2.44	2.51	2.43
	Spain										2.40	2.03	1.96	1.96	1.95	1.68	1.74	1.89	2.26	2.59	2.85	2.79	3.01	3.43	3.14	3.13	3.19
	Sweden	3.43	4.02	3.98	3.92	4.27	4.51	4.35	3.22	3.25	3.64	3.53	3.18	3.05	2.96	2.84	2.63	2.79	3.18	3.24	3.24	3.29	3.36	3.34	3.14	3.41	3.48
	Switzerland					2.26	2.26	2.24	2.19	2.39	2.72	2.49	2.27	2.18	2.27	2.00	2.12	2.21	2.54	2.63	2.66	2.61	2.62	2.85	2.96	3.09	3.34
	Ukraine										0.24	0.23	0.22	0.24	0.25	0.21	0.21	0.23	0.26	0.30	0.30	0.30	0.37	0.33	0.27	0.27	0.26
LATIN AMERICA AND THE CARIBBEAN	Chile																							4.60	5.73	6.06	6.50
	Colombia															2.00	1.77	1.72	1.50	1.69	2.13	2.04	2.36	2.63	2.65	3.00	3.20
	Mexico																		3.27	3.35	3.66	3.60	3.67	3.76	3.57	3.95	4.32
NORTHERN AMERICA	Canada	2.26	2.54	3.20	2.75	2.76	2.87	2.82	2.34	2.15	2.23	2.36	2.27	1.97	1.88	2.05	2.25	2.17	2.27	2.47	2.51	2.74	3.04	3.23	2.85	3.16	3.40
	United States of America	2.70	2.76	3.22	3.12	3.02	3.04	2.84	3.04	2.71	3.01	2.93	2.73	2.69	2.66	2.68	2.80	2.78	2.77	2.71	2.79	2.82	2.92	3.12	2.89	2.95	3.27
OCEANIA	Australia	2.82	2.78	3.12	3.73	3.86	3.63	2.83	2.66	3.84	2.98	3.82	3.68	2.36	2.21	2.18	1.86	2.64	2.31	4.01	3.19	4.84	3.97	4.47	3.79	5.53	6.21
	New Zealand		2.57	3.32	5.59	4.76	4.21	4.55	3.41	3.30	4.37	5.35	5.89	2.45	2.38	2.20	2.45	2.59	4.41								

Table 9. PCE-to-FCE Scalars Non-OECD		Date										
Region	Country	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
AFRICA	Algeria	1.25	1.22	1.18	1.14	1.19	1.20	1.20	1.30	1.30	1.27	1.35
	Cameroon	1.10	1.09	1.20	1.48	1.50	1.31	1.27	1.32	1.43	1.26	1.19
	Egypt	2.22	2.12	1.78	1.45	1.52	1.60	1.63	1.81	2.03	2.59	2.75
	Kenya	1.55	1.31	1.26	1.37	1.34	1.26	1.40	1.57	1.75	1.58	1.60
	Morocco	1.50	1.32	1.29	1.44	1.47	1.65	1.49	1.80	1.86	1.74	1.77
	Nigeria		0.26	0.35	0.38	0.41	0.48	0.46	0.52	0.55	0.52	0.53
	Tunisia	1.49	1.56	1.65	1.54	1.81	1.77	1.68	1.72	1.84	2.06	2.01
ASIA	Azerbaijan	1.80	1.58	1.56	1.57	1.61	1.72	2.12	2.63	3.30	3.61	3.64
	Bahrain	2.27	1.81	1.71	1.89	1.92	1.73	2.46	2.19	1.86	1.98	1.53
	China	0.51	0.51	0.50	0.51	0.52	0.52	0.54	0.62	0.73	0.76	0.80
	Georgia	1.41	1.22	1.02	1.03	1.30	1.25	2.28	2.05	2.42	2.82	2.92
	Indonesia	1.74	1.58	1.82	1.86	1.74	1.62	1.82	2.00	2.17	2.03	2.42
	Iran	0.86	0.82	0.84	0.82	0.96	0.98	1.04	1.19	1.66	1.51	1.66
	Jordan	2.48	2.71	2.50	2.52	2.38	2.92	3.03	2.84	2.62	3.06	3.25
	Kazakhstan	1.64	1.36	1.31	1.60	1.85	1.89	2.15	2.66	3.93	2.55	3.14
	Kuwait	1.65	1.69	2.77	2.67	2.42	2.35	2.24	2.29	2.37	2.74	2.91
	Malaysia	0.90	0.83	0.84	0.80	0.75	0.74	0.74	0.82	0.85	0.80	0.88
	Pakistan	1.31	1.24	1.28	1.31	1.38	1.41	1.49	1.54	1.53	1.66	1.93
	Philippines	1.80	1.60	1.60	1.56	1.57	1.68	1.85	1.98	2.03	2.07	2.29
	Qatar	0.91	0.87	0.95	1.00	1.93	1.64	1.71	1.79	1.53	1.78	1.57
	Saudi Arabia	1.81	1.85	1.76	1.67	1.70	1.62	1.74	1.78	1.78	2.26	2.02
	Singapore	2.35	2.08	2.45	2.52	2.74	2.83	2.98	2.64	2.61	2.94	2.74
	Thailand	1.54	1.42	1.51	1.71	2.21	2.15	2.39	2.59	3.84	3.53	4.01
	Turkmenistan	0.23	0.39					0.66	0.37	0.39	0.29	0.34
	United Arab Emirates	2.17	2.23	2.15	2.29	2.41		2.83	2.55	2.00	2.31	2.55
	Uzbekistan	3.20	2.76	1.96	1.79	1.78	1.67	2.06	2.04	1.75	2.28	2.46
	Viet Nam	1.32	1.20	1.11	1.12	1.17	1.23	1.31	1.45	1.95	1.83	1.85
EUROPE	Belarus	0.94	1.06	1.17	1.21	1.25	1.58	1.71	1.99	2.32	2.10	2.39
	Bosnia and Herzegovina	2.07	1.83	1.88	2.40	1.93	1.87	2.03	2.26	2.34	2.29	2.30
	Bulgaria	0.98	1.05	1.25	1.74	1.64	2.06	1.98	2.68	2.45	2.46	2.53
	Croatia	1.78	1.86	2.02	2.79	2.68	3.23	3.18	3.29	3.34	3.23	3.36
	Latvia	1.32	1.35	1.33	1.34	1.80	1.90	2.12	2.32	2.53	2.37	1.97
	Lithuania	1.65	2.03	1.89	2.35	2.93	3.19	4.08	4.58	5.11	3.88	4.38
	Macedonia	1.09	1.15	1.33	1.65	1.59	1.83	1.84	1.66	2.31	2.19	2.21
	Romania	0.87	0.82	0.93	1.01	1.12	1.44	1.61	2.24	2.21	1.83	1.96
	Ukraine	0.65	0.79	0.84	0.92	1.02	1.42	1.63	2.22	2.60	1.87	1.92
LATIN AMERICA AND THE CARIBBEAN	Argentina	3.64	3.21	1.14	1.40	1.73	1.71	1.93	2.45	5.54	5.53	3.76
	Bolivia	1.83	1.78	1.60	1.42	1.63	1.42	1.53	1.61	1.90	1.97	2.03
	Brazil	2.27	1.90	1.65	1.78	2.11	2.89	3.46	4.10	4.70	4.68	6.24
	Costa Rica	3.30	2.72	2.68	2.81	2.88	3.01	2.31	3.12	4.03	4.05	4.76
	Dominican Republic	3.63	3.17	2.98	2.52	2.66	3.45	3.16	3.25	3.43	3.41	3.64
	Ecuador	1.17	1.47	1.61	1.76	1.57	1.70	1.67	1.58	1.64	1.97	1.73
	Peru	2.89	2.85	2.85	2.93	3.22	3.15	3.23	3.32	3.65	3.64	4.08
	Uruguay	2.51	2.52	1.68	1.73	2.18	2.53	3.04	3.85	5.08	5.01	4.81
	Venezuela	1.66	1.74	1.37	1.28	1.50	1.68	1.88	2.14	2.42	3.39	3.85

APPENDIX IV

Table 10. NER 'Food' Dataset

Areas	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Afghanistan	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Albania	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	16.25%	16.93%	17.25%	18.23%	17.04%	16.65%
Algeria	23.51%	28.73%	20.42%	18.70%	19.53%	14.77%	15.10%	16.74%	14.50%	13.26%	16.22%	12.65%	12.19%	15.04%	18.11%	13.74%	12.84%	12.77%	12.53%	15.06%	14.31%	12.46%	11.82%	10.80%	12.34%
Angola	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	5.09%
Antigua and Barbuda	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	11.52%	13.16%	12.83%	15.10%	14.80%	14.12%	13.31%	13.69%	11.33%
Argentina	9.68%	8.91%	9.71%	7.19%	5.37%	6.71%	8.93%	8.25%	7.87%	7.16%	6.26%	6.14%	4.02%	3.80%	6.35%	6.40%	4.53%	6.31%	5.23%	4.90%	4.37%	7.34%	5.17%	6.98%	8.06%
Armenia	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Australia	7.77%	7.89%	7.72%	7.64%	7.55%	7.66%	7.39%	7.05%	6.72%	6.37%	6.41%	6.88%	8.95%	9.19%	8.66%	8.60%	8.07%	8.75%	8.65%	8.96%	8.98%	8.05%	7.62%	7.34%	6.09%
Austria	6.06%	5.92%	6.01%	5.80%	5.20%	5.36%	5.13%	5.08%	4.62%	4.35%	4.14%	3.79%	4.13%	3.92%	3.94%	9.79%	9.36%	9.27%	8.71%	8.56%	8.27%	8.05%	7.85%	7.82%	7.65%
Azerbaijan	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Bahamas	5.29%	4.65%	4.54%	4.74%	4.44%	4.94%	4.70%	4.71%	5.97%	6.32%	5.86%	6.36%	6.47%	7.94%	8.11%	8.30%	5.64%	4.71%	4.91%	6.31%	4.96%	6.73%	5.62%	5.25%	5.05%
Bahrain	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	6.21%	5.62%	6.22%	6.08%	5.98%	5.69%
Bangladesh	23.96%	21.01%	25.94%	22.53%	20.43%	20.70%	24.13%	22.58%	23.28%	21.94%	22.15%	25.85%	32.68%	28.70%	31.31%	26.38%	23.73%	25.39%	22.38%	25.35%	22.15%	23.10%	22.53%	21.54%	23.19%
Barbados	5.42%	5.71%	3.07%	5.41%	5.29%	5.03%	4.77%	5.71%	5.99%	6.47%	6.71%	7.41%	7.11%	5.93%	2.92%	6.56%	6.97%	7.46%	6.58%	5.43%	7.38%	7.07%	7.51%	6.61%	6.20%
Belarus	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Belgium	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Belize	9.82%	21.50%	10.74%	8.65%	15.83%	14.15%	17.23%	18.39%	18.57%	20.64%	20.88%	11.88%	9.23%	#N/A	#N/A	13.47%	8.16%	4.03%	7.46%	#N/A	10.24%	9.62%	7.88%	8.58%	12.39%
Benin	16.88%	16.63%	16.31%	15.67%	15.41%	15.35%	15.82%	15.61%	14.43%	13.93%	14.55%	14.57%	14.21%	13.21%	13.60%	15.85%	15.71%	16.45%	17.07%	16.06%	15.44%	15.62%	16.18%	16.56%	15.06%
Bermuda	5.57%	5.26%	5.51%	4.95%	4.98%	4.70%	3.94%	4.08%	3.93%	3.76%	3.81%	4.18%	4.52%	4.99%	4.39%	4.16%	3.57%	3.79%	3.76%	3.60%	3.62%	3.50%	3.57%	3.64%	3.49%
Bhutan	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	74.49%
Bolivia	14.50%	14.51%	14.63%	13.10%	13.43%	12.04%	11.68%	14.41%	13.76%	14.35%	13.62%	13.38%	11.96%	13.48%	14.36%	12.37%	11.57%	12.60%	12.04%	12.90%	15.18%	15.06%	12.85%	15.32%	17.30%
Bosnia and Herzegovina	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Botswana	4.60%	5.52%	3.65%	#N/A	#N/A	#N/A	2.99%	4.40%	5.53%	3.07%	3.82%	1.86%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	6.41%	2.11%	1.43%	3.29%	3.78%	2.24%
Brazil	5.25%	6.00%	5.80%	6.31%	6.59%	5.93%	6.75%	6.00%	5.41%	5.01%	4.79%	3.90%	2.94%	2.97%	3.23%	2.87%	2.13%	2.66%	3.07%	2.77%	3.06%	3.65%	3.42%	3.35%	3.93%
Brunei Darussalam	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1.62%	1.85%	1.49%	1.39%	1.40%	1.29%	1.67%	2.28%	2.09%	2.05%	2.07%	1.84%
Bulgaria	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	15.92%	19.92%	18.57%	19.01%	20.73%	19.58%
Burkina Faso	32.14%	34.12%	35.49%	38.97%	33.36%	38.23%	35.19%	35.12%	34.19%	35.92%	33.00%	39.98%	39.48%	40.76%	35.05%	29.33%	31.81%	34.98%	32.72%	31.22%	34.80%	32.14%	30.43%	32.78%	37.92%
Burundi	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Cabo Verde	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	67.39%	64.71%	52.63%	56.01%	52.39%
Cambodia	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Cameroon	22.49%	22.09%	20.78%	22.28%	21.56%	21.00%	25.40%	23.25%	20.00%	24.10%	26.35%	27.53%	23.31%	19.21%	19.01%	17.53%	12.23%	8.31%	9.13%	10.13%	13.46%	14.74%	13.50%	11.07%	11.50%
Canada	3.76%	4.21%	4.07%	3.22%	3.47%	3.22%	3.42%	3.61%	3.76%	3.26%	3.20%	2.96%	2.68%	2.31%	2.51%	2.66%	2.82%	2.83%	2.49%	2.10%	7.10%	7.19%	7.02%	6.53%	5.99%
Central African Republic	16.14%	17.03%	18.50%	14.61%	18.21%	15.80%	18.03%	18.29%	17.77%	17.32%	17.70%	18.09%	21.77%	18.67%	21.16%	18.14%	13.53%	16.26%	18.76%	18.66%	23.71%	18.96%	22.94%	18.91%	17.40%
Chad	10.45%	10.54%	12.17%	11.51%	12.18%	13.31%	13.74%	14.06%	12.61%	11.93%	11.43%	11.29%	12.96%	12.84%	11.23%	8.02%	7.53%	7.51%	9.26%	7.29%	6.85%	9.54%	7.59%	7.84%	8.11%
Chile	10.39%	10.07%	10.28%	9.90%	9.60%	9.86%	9.16%	9.17%	8.73%	8.67%	8.10%	8.74%	8.82%	12.81%	9.52%	10.46%	8.09%	8.26%	8.42%	8.48%	8.22%	7.88%	7.76%	6.86%	5.31%
China	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	77.17%	78.38%	77.72%	72.53%	73.63%	71.19%	69.87%	69.29%	65.12%	64.91%	64.79%	61.78%	57.59%	49.89%
Colombia	5.09%	5.11%	5.44%	4.32%	5.06%	5.38%	5.46%	5.34%	5.33%	4.32%	5.82%	5.06%	4.05%	4.43%	4.47%	4.03%	1.86%	#N/A	#N/A	#N/A	4.34%	4.17%	4.63%	3.99%	4.09%
Comoros	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	12.27%	8.38%	4.18%	4.61%	11.29%	3.27%
Congo	20.02%	20.03%	22.00%	21.68%	23.59%	21.31%	23.37%	22.97%	18.76%	17.25%	17.58%	14.76%	14.46%	13.27%	13.28%	13.45%	14.04%	14.60%	14.55%	13.12%	10.72%	10.26%	9.32%	9.08%	9.62%
Costa Rica	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1.85%	1.79%	1.80%	4.99%	1.59%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Côte d Ivoire	6.63%	10.88%	4.85%	1.89%	7.17%	5.01%	6.55%	1.52%	3.56%	2.74%	4.80%	5.74%	4.20%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Croatia	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Cuba	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Cyprus	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	14.40%	11.28%	8.58%	9.41%	8.95%	9.35%	9.67%	8.31%	9.62%	8.23%	8.32%

Table 10. NER 'Food' Dataset (Cont.)

Areas	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Afghanistan	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	17.15%	17.82%	16.71%	18.42%	17.33%	15.87%	20.92%	14.25%	13.01%	15.47%
Albania	15.95%	15.49%	16.31%	16.46%	19.09%	25.46%	33.53%	34.64%	30.70%	28.74%	28.84%	27.85%	26.35%	25.21%	22.92%	21.93%	22.12%	22.18%	22.51%	20.96%	21.09%	21.09%	20.94%	20.07%	20.50%	20.92%
Algeria	11.48%	11.68%	11.44%	14.11%	11.94%	12.80%	13.24%	13.15%	14.49%	14.03%	14.12%	12.47%	12.87%	12.32%	14.75%	14.37%	13.84%	13.94%	15.50%	14.92%	15.08%	16.31%	18.91%	18.39%	19.29%	17.46%
Angola	4.30%	4.86%	4.94%	5.39%	5.42%	5.11%	5.87%	6.73%	6.79%	6.43%	6.31%	5.95%	5.80%	4.93%	5.07%	5.40%	5.86%	6.20%	6.43%	6.15%	5.55%	5.09%	5.81%	5.55%	5.65%	6.77%
Antigua and Barbuda	9.74%	9.30%	9.41%	8.71%	8.78%	7.80%	8.16%	7.20%	6.61%	6.87%	6.35%	6.47%	5.83%	5.07%	4.96%	4.56%	4.66%	4.38%	4.18%	8.06%	5.00%	5.30%	5.81%	6.74%	7.10%	9.28%
Argentina	8.81%	8.72%	8.22%	7.64%	8.57%	8.42%	7.47%	7.29%	7.82%	7.44%	7.07%	5.41%	6.46%	7.94%	27.86%	26.88%	9.96%	11.52%	11.94%	12.20%	12.09%	13.18%	14.90%	13.82%	14.23%	1.30%
Armenia	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	40.03%	36.01%	38.53%	39.41%	41.28%	34.27%	32.91%	30.41%	27.64%	26.74%	23.12%	20.99%	22.40%	21.53%	19.13%	20.51%	20.74%	22.76%	21.07%	22.72%
Australia	5.89%	6.23%	6.91%	7.07%	6.80%	6.89%	6.52%	5.85%	6.34%	6.41%	6.54%	6.15%	5.17%	5.21%	4.93%	4.56%	4.85%	5.72%	6.46%	6.50%	6.58%	7.47%	7.35%	7.10%	8.58%	8.95%
Austria	7.51%	7.37%	7.21%	7.01%	6.84%	6.81%	6.81%	6.76%	6.55%	6.11%	5.94%	5.82%	5.61%	5.33%	4.55%	4.47%	4.66%	5.56%	6.04%	5.89%	5.74%	6.24%	6.83%	6.72%	6.46%	6.08%
Azerbaijan	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	15.39%	16.23%	18.20%	21.72%	24.92%	20.22%	19.54%	19.14%	34.15%	29.97%	28.15%	27.17%	26.41%	22.50%	21.98%	23.36%	29.45%	29.33%	29.75%	8.49%
Bahamas	5.21%	5.36%	5.23%	4.84%	4.52%	5.02%	4.50%	4.16%	4.30%	4.59%	4.73%	4.40%	4.22%	4.15%	5.25%	4.46%	3.10%	2.58%	2.95%	4.33%	4.60%	4.74%	5.04%	5.24%	4.21%	4.12%
Bahrain	5.14%	4.81%	4.49%	4.54%	4.40%	3.66%	3.92%	3.64%	3.53%	3.25%	2.82%	3.28%	1.89%	1.77%	6.76%	6.39%	5.89%	5.53%	5.23%	5.13%	5.22%	5.05%	5.01%	4.85%	4.82%	3.31%
Bangladesh	20.33%	20.13%	21.03%	21.48%	20.20%	19.56%	18.87%	17.95%	16.49%	17.44%	17.34%	16.51%	16.57%	19.37%	17.70%	16.35%	16.28%	16.48%	15.57%	15.99%	15.28%	15.80%	16.16%	16.08%	16.77%	16.81%
Barbados	5.84%	5.93%	5.73%	6.29%	5.93%	6.28%	5.50%	5.63%	5.57%	6.05%	5.15%	5.37%	3.78%	5.48%	4.58%	5.43%	5.37%	5.99%	5.10%	6.11%	5.74%	5.89%	6.32%	6.16%	6.68%	6.95%
Belarus	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	25.28%	26.59%	24.66%	27.33%	27.85%	23.63%	20.96%	19.42%	18.64%	19.00%	20.49%	20.16%	21.01%	23.56%	25.11%	27.20%	32.08%	26.93%	26.50%	9.63%
Belgium	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	7.17%	6.90%	6.64%	6.46%	6.15%	5.07%	5.06%	5.38%	6.52%	6.92%	6.67%	6.41%	6.92%	7.49%	7.27%	6.83%	7.58%
Belize	8.14%	7.72%	6.79%	2.93%	2.47%	4.18%	7.01%	8.92%	6.16%	4.61%	5.44%	6.19%	6.58%	4.85%	6.59%	7.63%	9.22%	8.82%	8.37%	8.50%	7.32%	7.94%	8.34%	7.76%	9.39%	8.01%
Benin	15.53%	14.69%	17.14%	17.61%	18.82%	19.82%	22.35%	20.47%	19.37%	19.46%	18.85%	18.63%	18.66%	18.80%	17.48%	16.85%	17.81%	18.73%	19.09%	19.02%	21.06%	19.63%	22.41%	18.41%	16.39%	21.92%
Bermuda	3.23%	3.05%	2.81%	2.66%	2.51%	2.40%	2.99%	2.77%	4.19%	2.53%	2.37%	2.21%	2.06%	1.63%	1.48%	1.33%	1.35%	1.29%	1.26%	1.28%	1.65%	1.73%	2.01%	2.00%	1.85%	2.01%
Bhutan	68.22%	59.28%	45.12%	43.64%	45.73%	46.25%	43.84%	45.56%	44.66%	41.83%	43.02%	42.93%	39.45%	38.57%	24.83%	23.06%	20.05%	21.26%	24.44%	27.70%	25.84%	22.13%	19.85%	18.00%	18.95%	19.08%
Bolivia	16.31%	17.72%	16.31%	15.52%	13.43%	15.63%	15.10%	15.38%	14.65%	16.30%	14.94%	13.92%	13.86%	14.20%	27.02%	25.26%	22.78%	21.07%	20.26%	19.76%	20.56%	21.75%	24.85%	25.81%	25.38%	12.94%
Bosnia and Herzegovina	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	48.83%	40.31%	23.97%	21.23%	17.86%	14.84%	26.25%	26.08%	27.24%	31.48%	31.92%	31.94%	32.06%	35.05%	39.87%	37.39%	35.22%	16.37%
Botswana	1.42%	2.93%	3.46%	2.29%	3.49%	3.56%	4.29%	3.76%	3.48%	4.28%	4.23%	3.62%	3.33%	3.29%	3.35%	2.94%	2.75%	2.99%	2.10%	1.98%	2.18%	2.35%	2.80%	3.02%	2.72%	3.56%
Brazil	3.99%	4.04%	4.19%	4.56%	4.61%	4.98%	5.23%	5.11%	5.16%	5.43%	5.03%	5.14%	5.30%	5.59%	13.10%	10.84%	9.82%	11.22%	11.97%	15.16%	17.55%	19.99%	22.13%	22.35%	26.32%	3.75%
Brunei Darussalam	1.98%	2.30%	2.48%	2.28%	2.30%	2.26%	2.26%	2.28%	2.59%	2.43%	2.41%	2.82%	2.74%	2.06%	2.04%	2.02%	2.31%	2.43%	2.15%	2.18%	2.09%	1.88%	2.48%	2.48%	2.66%	2.84%
Bulgaria	20.52%	18.65%	17.17%	18.99%	17.37%	19.37%	17.62%	15.76%	14.85%	15.14%	14.38%	16.34%	15.19%	15.31%	13.53%	13.72%	13.00%	14.71%	16.18%	15.72%	15.37%	17.92%	18.71%	19.14%	18.23%	7.20%
Burkina Faso	36.95%	34.76%	38.87%	36.67%	35.30%	41.19%	41.23%	40.83%	39.76%	38.76%	39.73%	32.98%	34.56%	34.32%	28.78%	32.76%	31.15%	32.29%	27.45%	29.84%	28.84%	24.00%	29.25%	26.26%	28.08%	23.99%
Burundi	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Cabo Verde	66.27%	#N/A	79.67%	77.82%	74.21%	67.60%	74.11%	63.79%	50.73%	52.17%	43.85%	41.42%	38.40%	37.87%	30.31%	32.06%	29.28%	31.68%	30.45%	29.76%	29.51%	28.56%	29.48%	28.77%	28.08%	28.71%
Cambodia	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	47.92%	43.22%	47.04%	45.77%	44.37%	42.92%	42.71%	39.55%	36.97%	34.29%	35.92%	33.10%	36.82%	40.81%	37.75%	41.22%	43.11%	43.57%	49.12%
Cameroon	11.02%	11.09%	12.69%	13.64%	16.02%	17.85%	20.03%	21.71%	21.59%	20.93%	20.49%	20.39%	21.91%	21.66%	24.38%	23.84%	25.88%	31.26%	32.58%	32.65%	34.45%	38.15%	41.98%	38.09%	35.67%	31.74%
Canada	5.93%	6.14%	6.30%	6.45%	6.64%	6.90%	6.33%	5.88%	5.28%	5.18%	5.18%	4.96%	4.56%	4.40%	4.28%	4.19%	4.10%	4.60%	4.84%	5.06%	5.28%	5.55%	5.74%	5.77%	6.43%	6.44%
Central African Republic	20.23%	21.03%	22.46%	20.71%	25.17%	26.47%	28.73%	29.29%	28.75%	27.15%	32.11%	29.76%	31.16%	28.23%	32.42%	32.30%	31.31%	32.96%	33.07%	33.13%	31.60%	30.80%	30.74%	29.62%	27.54%	27.71%
Chad	11.13%	11.29%	11.40%	10.72%	11.99%	12.30%	11.69%	12.39%	11.19%	12.62%	13.51%	12.83%	14.74%	13.47%	12.72%	13.69%	12.60%	12.18%	8.70%	8.42%	8.26%	7.75%	8.36%	8.35%	7.77%	7.34%
Chile	4.54%	4.76%	4.74%	4.37%	4.25%	4.16%	3.90%	4.05%	4.06%	3.71%	3.49%	3.63%	3.46%	3.35%	12.96%	11.05%	10.37%	10.44%	11.66%	12.82%	13.73%	14.21%	15.15%	14.63%	16.13%	14.03%
China	47.44%	44.88%	41.28%	41.07%	42.87%	40.16%	36.81%	34.50%	32.16%	31.80%	30.89%	28.60%	28.09%	26.94%	13.10%	12.14%	11.35%	10.70%	10.74%	9.89%	9.25%	9.74%	11.21%	10.89%	10.80%	12.71%
Colombia	1.56%	4.37%	4.77%	5.22%	5.48%	5.33%	5.37%	5.83%	5.01%	5.50%	5.92%	5.07%	5.18%	6.12%	12.47%	12.01%	11.60%	10.17%	11.07%	12.42%	12.08%	13.93%	15.98%	14.97%	17.00%	17.20%
Comoros	3.99%	7.73%	6.23%	9.19%	10.30%	7.79%	9.71%	7.58%	12.99%	15.63%	15.24%	14.82%	14.60%	14.63%	10.73%	10.38%	12.14%	7.49%	8.74%	13.61%	13.34%	16.14%	17.67%	16.74%	19.79%	15.26%
Congo	10.23%	9.78%	10.72%	10.17%	9.84%	10.61%	11.19%	11.25%	10.82%	11.53%	11.78%	11.07%	11.43%	11.29%	11.27%	10.71%	10.95%	11.73%	12.55%	10.74%	11.18%	11.82%	11.71%	12.43%	10.83%	13.82%
Costa Rica	#N/A	#N/A	1.93%	4.71%	6.18%	5.29%	6.03%	5.67%	4.36%	1.47%	3.04%	2.81%	2.55%	4.45%	17.22%	17.56%	17.07%	15.93%	15.48%	15.87%	15.15%	16.40%	19.21%	19.51%	22.68%	5.65%
Côte d Ivoire	#N/A	1.08%	6.73%	6.12%	10.53%	11.61%	13.60%	12.84%	13.13%	10.07%	7.92%	8.54%	7.77%	8.86%	13.21%	11.82%	6.85%	7.03%	9.82%	11.05%	12.64%	11.14%	10.17%	4.72%	4.65%	5.50%
Croatia	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	7.60%	7.22%	6.75%	6.27%	6.82%	10.38%	11.82%	12.93%	14.67%	15.78%	15.88%	16.09%	16.93%	19.38%	18.68%	18.11%	5.82%
Cuba	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1.95%	1.78%	2.14%	1.66%	1.99%	2.77%	3.64%	3.61%	3.10%	3.63%	4.19%	4.33%	4.64%	3.60%	4.17%	5.19%	4.02%	3.58%	3.96%
Cyprus	7.54%	7.16%	7.75%	7.59%	6.66%	6.44%	7.06%	7.22%	6.66%	6.83%	7.31%	6.93%	6.78%	6.73%	6.45%	6.22%	6.34%	6.13%	6.33%	6.11%	5.89%	6.21%	6.67%	6.04%	6.03%	6.18%

Table 10. NER 'Food' Dataset

Areas	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Czech Republic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Dem. Rep. Congo	15.56%	13.29%	13.24%	12.72%	14.04%	13.30%	12.58%	12.31%	12.06%	12.49%	11.72%	11.69%	11.89%	12.82%	12.59%	12.69%	10.70%	11.69%	13.50%	13.46%	16.16%	15.13%	15.32%	14.07%	15.64%
Denmark	2.96%	2.96%	2.42%	2.36%	2.12%	6.81%	6.87%	6.33%	6.08%	6.36%	6.30%	6.53%	8.09%	8.14%	8.62%	8.54%	8.80%	9.61%	9.33%	8.70%	7.17%	6.14%	5.47%	4.88%	4.56%
Dominica	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	8.58%	8.28%	11.34%	15.84%	10.83%	9.10%	7.41%	8.96%	6.75%
Dominican Republic	7.75%	4.44%	4.79%	6.70%	11.79%	10.92%	9.14%	9.70%	10.04%	8.24%	8.24%	5.83%	5.32%	2.26%	#N/A	4.22%	1.59%	5.41%	4.45%	5.77%	2.96%	6.16%	7.44%	6.85%	7.53%
Ecuador	7.57%	6.56%	6.71%	8.12%	7.28%	6.72%	6.28%	7.13%	7.65%	7.54%	6.86%	5.83%	4.95%	3.80%	4.68%	2.89%	#N/A	#N/A	#N/A	2.98%	4.15%	6.56%	6.54%	6.27%	5.67%
Egypt	31.01%	35.26%	33.85%	30.78%	28.77%	30.56%	29.22%	26.90%	22.98%	22.73%	25.18%	24.79%	24.24%	37.06%	36.35%	30.47%	26.06%	28.83%	25.16%	27.18%	33.08%	28.11%	26.41%	26.49%	24.00%
El Salvador	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	3.43%	1.35%
Equatorial Guinea	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	4.02%
Eritrea	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Estonia	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Ethiopia	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Fiji	18.47%	17.58%	10.09%	9.83%	19.31%	20.76%	17.22%	17.52%	16.01%	15.74%	14.85%	12.24%	14.71%	6.23%	1.18%	8.67%	6.90%	8.59%	5.78%	#N/A	6.44%	8.07%	8.66%	11.44%	12.42%
Finland	6.01%	5.84%	6.35%	5.84%	5.48%	5.24%	5.07%	4.91%	4.57%	4.49%	3.94%	3.76%	3.73%	3.86%	7.54%	8.09%	8.67%	8.50%	8.00%	7.78%	7.82%	8.23%	8.34%	8.52%	8.49%
France	7.48%	7.64%	7.94%	7.81%	7.71%	7.60%	7.41%	7.22%	7.09%	6.83%	6.68%	6.77%	6.66%	6.73%	7.02%	7.13%	7.35%	7.35%	7.26%	7.29%	7.59%	7.98%	8.37%	8.76%	8.91%
Gabon	4.45%	4.44%	4.36%	4.07%	4.00%	3.82%	3.70%	3.70%	3.39%	3.16%	2.89%	2.83%	2.65%	2.63%	2.64%	2.00%	2.56%	3.69%	3.48%	3.64%	3.70%	4.02%	3.53%	3.30%	3.53%
Gambia	#N/A	#N/A	#N/A	#N/A	#N/A	54.49%	48.74%	51.14%	49.72%	49.94%	52.79%	48.18%	48.49%	46.12%	40.79%	45.49%	33.39%	46.47%	37.11%	42.39%	48.80%	50.28%	34.76%	37.37%	36.23%
Georgia	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Germany	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	4.43%	4.27%	4.24%	4.33%	4.16%	4.19%	4.15%	4.17%	4.19%	4.02%	3.82%	3.44%	3.54%	3.40%	3.41%	3.25%
Ghana	30.10%	31.57%	28.38%	32.15%	27.43%	41.02%	35.85%	35.46%	33.21%	28.28%	37.75%	34.69%	31.07%	29.89%	23.84%	23.56%	7.99%	8.62%	12.76%	17.23%	33.07%	34.28%	43.11%	49.70%	45.36%
Greece	17.61%	13.47%	15.01%	13.02%	13.14%	12.81%	12.54%	11.58%	10.69%	10.88%	10.03%	9.56%	9.24%	10.74%	10.38%	8.96%	8.72%	8.72%	8.29%	9.22%	9.59%	10.12%	9.72%	9.56%	10.17%
Grenada	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	3.96%	5.25%	6.40%	4.30%	6.19%	5.61%
Guatemala	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Guinea	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Guinea-Bissau	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	18.12%	20.90%	18.47%	24.67%	25.96%	19.99%	17.74%	17.71%	24.15%	17.85%	18.18%	21.10%	15.98%	15.67%	13.87%	12.44%
Guyana	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Haiti	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Honduras	12.12%	10.94%	11.33%	11.01%	4.07%	4.45%	7.08%	7.23%	10.62%	10.35%	9.25%	11.43%	9.31%	12.64%	10.01%	3.27%	#N/A	#N/A	#N/A	#N/A	2.73%	3.31%	3.97%	3.22%	2.03%
Hungary	18.41%	18.28%	17.41%	16.42%	11.24%	11.08%	10.14%	10.36%	9.55%	8.68%	9.26%	8.16%	6.82%	7.55%	7.06%	6.70%	7.13%	7.06%	6.17%	6.83%	6.32%	6.58%	6.95%	7.50%	7.26%
Iceland	9.16%	8.97%	8.28%	7.94%	7.87%	6.84%	7.21%	7.24%	6.61%	6.58%	5.94%	5.88%	6.03%	6.43%	6.38%	5.86%	5.46%	5.31%	5.07%	4.82%	4.49%	4.25%	4.24%	4.02%	3.97%
India	43.02%	41.31%	39.73%	38.29%	38.18%	38.60%	38.02%	38.27%	36.55%	36.08%	35.92%	34.40%	35.97%	34.61%	35.87%	34.96%	32.87%	32.49%	32.60%	31.66%	32.33%	31.30%	33.04%	32.57%	31.42%
Indonesia	29.74%	31.82%	30.13%	31.65%	28.81%	29.08%	27.96%	29.66%	27.94%	28.31%	26.44%	24.82%	26.48%	24.74%	22.99%	21.64%	19.56%	19.66%	18.42%	18.75%	19.49%	18.46%	18.22%	17.27%	16.99%
Iran	#N/A	#N/A	#N/A	#N/A	13.17%	12.19%	10.65%	10.52%	9.13%	8.68%	8.24%	7.75%	7.88%	9.82%	11.37%	8.81%	9.30%	9.40%	10.56%	12.82%	15.76%	14.30%	12.48%	12.86%	12.28%
Iraq	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Ireland	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	6.90%	6.72%	5.37%	3.96%	4.91%	3.42%	3.77%	3.76%	2.35%	2.19%	2.44%	3.78%	4.63%	5.09%	5.24%	5.11%
Israel	6.83%	6.45%	5.78%	6.94%	5.80%	6.50%	5.89%	5.74%	5.03%	5.37%	5.10%	4.84%	5.61%	6.38%	6.01%	5.27%	5.16%	4.70%	4.92%	4.55%	4.39%	4.53%	4.56%	4.52%	4.00%
Italy	6.98%	6.49%	6.75%	6.67%	6.76%	6.67%	6.59%	6.02%	5.97%	3.80%	3.78%	3.78%	3.94%	4.19%	4.51%	4.87%	5.36%	5.62%	5.75%	6.06%	6.41%	7.09%	7.54%	7.75%	7.96%
Japan	10.93%	10.38%	9.81%	9.01%	8.53%	7.78%	7.39%	6.73%	5.81%	5.85%	5.37%	5.33%	5.12%	5.50%	5.46%	4.99%	5.11%	4.85%	4.76%	4.41%	4.23%	4.07%	3.94%	3.93%	3.69%
Jordan	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	26.56%	27.60%	24.62%	24.39%	21.17%	19.05%	19.01%	19.94%	19.54%	18.25%	17.65%
Kazakhstan	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Kenya	47.32%	43.37%	38.66%	37.05%	39.65%	31.62%	32.23%	32.38%	29.39%	32.00%	29.39%	24.31%	21.88%	22.49%	23.02%	18.73%	5.47%	13.40%	15.47%	16.71%	17.09%	21.83%	20.28%	15.62%	20.69%
Kiribati	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	16.68%	18.86%	16.18%	17.24%	14.85%	10.56%	15.15%	15.39%	17.27%	19.81%	36.17%	37.35%	31.75%	24.81%	30.76%	30.26%
Kuwait	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Kyrgyzstan	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Lao	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	45.00%	42.43%

Table 10. NER 'Food' Dataset (Cont.)

Areas	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Czech Republic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	6.50%	6.62%	7.12%	7.45%	6.90%	7.31%	6.89%	6.10%	6.32%	6.94%	7.51%	7.99%	7.82%	7.78%	8.69%	10.96%	10.01%	9.80%	9.70%
Dem. Rep. Congo	12.96%	15.23%	16.10%	16.61%	19.14%	21.51%	25.00%	29.27%	30.45%	26.12%	26.30%	27.50%	27.30%	28.15%	30.36%	30.72%	30.18%	29.43%	29.04%	27.10%	27.89%	25.59%	24.91%	25.70%	23.72%	23.82%
Denmark	5.73%	6.60%	6.71%	6.24%	7.13%	6.69%	7.02%	6.23%	6.29%	7.09%	6.65%	5.77%	5.59%	5.08%	4.29%	4.19%	4.41%	5.16%	5.54%	5.32%	5.24%	5.76%	6.37%	6.19%	5.98%	6.19%
Dominica	1.40%	#N/A	#N/A	5.03%	3.27%	2.44%	2.09%	3.14%	4.74%	6.70%	8.48%	7.46%	6.07%	5.35%	7.79%	7.71%	8.18%	8.53%	8.16%	8.48%	7.84%	9.66%	9.23%	9.32%	9.30%	8.83%
Dominican Republic	7.46%	8.57%	8.27%	8.85%	8.23%	8.70%	8.90%	8.45%	7.65%	8.13%	7.84%	7.45%	6.89%	7.05%	24.85%	23.54%	22.20%	17.42%	18.23%	24.00%	21.96%	22.08%	23.12%	21.81%	22.26%	6.28%
Ecuador	4.52%	5.70%	6.45%	6.82%	6.70%	5.93%	7.05%	7.69%	6.63%	6.93%	7.37%	7.83%	7.91%	8.52%	11.62%	14.26%	14.87%	15.09%	14.21%	14.17%	13.94%	13.82%	13.97%	14.54%	14.10%	7.44%
Egypt	22.94%	20.76%	21.54%	20.66%	22.49%	21.11%	20.94%	20.39%	20.81%	21.79%	22.60%	21.92%	21.22%	21.05%	45.04%	39.88%	34.89%	27.55%	27.65%	30.22%	31.11%	35.29%	39.82%	44.80%	48.93%	18.74%
El Salvador	#N/A	3.28%	3.60%	6.60%	5.80%	7.41%	8.17%	6.61%	6.06%	5.22%	6.36%	4.93%	5.93%	6.50%	7.08%	8.01%	8.37%	8.44%	8.86%	8.48%	8.82%	8.86%	9.69%	9.37%	8.67%	7.90%
Equatorial Guinea	5.57%	6.77%	7.96%	8.63%	11.13%	11.93%	10.83%	10.91%	8.34%	8.36%	6.07%	4.01%	2.82%	2.35%	1.90%	1.28%	1.20%	1.15%	#N/A	#N/A	#N/A	#N/A	1.03%	1.08%	1.12%	1.37%
Eritrea	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	53.64%	61.89%	51.16%	49.42%	46.48%	63.17%	51.28%	48.20%	47.44%	37.24%	48.21%	50.82%	59.04%	54.69%	62.91%	50.75%	56.64%	54.79%	55.87%
Estonia	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	10.27%	9.94%	8.66%	9.83%	10.35%	9.69%	9.45%	7.87%	7.72%	8.24%	9.49%	10.84%	10.72%	10.46%	11.41%	14.23%	14.03%	12.25%	13.15%
Ethiopia	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	34.77%	34.30%	35.09%	37.21%	34.09%	32.02%	34.99%	35.19%	37.83%	40.15%	47.29%	40.20%	39.36%	36.27%	32.29%	34.02%	33.83%	32.37%	28.79%
Fiji	11.18%	6.84%	8.64%	9.72%	11.28%	8.53%	11.07%	12.30%	11.14%	10.23%	8.88%	12.24%	12.26%	10.84%	12.54%	11.77%	12.31%	12.17%	13.02%	13.22%	13.64%	14.62%	14.65%	14.16%	15.96%	16.66%
Finland	8.53%	8.29%	7.96%	7.61%	7.46%	7.95%	8.12%	8.07%	7.83%	7.11%	6.43%	6.05%	5.81%	5.77%	4.79%	4.75%	4.94%	5.93%	6.19%	5.98%	5.84%	6.28%	7.14%	7.16%	6.84%	7.28%
France	8.92%	8.81%	8.45%	8.26%	8.12%	8.05%	7.78%	7.71%	7.52%	7.40%	7.25%	7.15%	7.03%	6.83%	5.97%	5.89%	6.28%	7.58%	8.06%	7.81%	7.63%	8.15%	8.93%	8.70%	8.09%	8.22%
Gabon	3.32%	4.11%	3.71%	3.25%	2.97%	3.29%	3.64%	3.37%	2.75%	3.16%	3.08%	2.87%	3.01%	3.05%	3.17%	3.08%	2.77%	2.42%	3.32%	3.48%	3.51%	3.84%	4.44%	4.50%	4.46%	4.91%
Gambia	39.36%	37.87%	38.18%	40.16%	36.63%	41.73%	36.87%	35.80%	34.65%	36.36%	30.21%	33.32%	29.50%	34.29%	32.54%	28.68%	24.70%	25.62%	37.59%	37.64%	36.99%	26.40%	26.80%	27.05%	33.57%	22.17%
Georgia	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	24.49%	32.56%	33.87%	44.87%	43.41%	39.07%	33.00%	32.43%	38.71%	33.75%	26.87%	27.15%	32.87%	30.94%	38.59%	37.68%	43.83%	41.31%	43.52%	16.01%
Germany	3.38%	3.27%	3.14%	2.92%	2.86%	6.97%	6.99%	6.92%	6.72%	6.65%	6.50%	6.27%	6.16%	6.02%	5.20%	5.07%	5.26%	6.16%	6.55%	6.32%	6.11%	6.49%	6.95%	6.76%	6.14%	6.55%
Ghana	43.59%	44.13%	45.88%	50.61%	41.01%	61.73%	60.20%	62.35%	57.61%	62.29%	57.27%	58.27%	60.96%	63.04%	60.56%	61.78%	64.95%	59.44%	58.22%	59.57%	53.82%	50.61%	54.23%	55.78%	55.40%	43.27%
Greece	9.32%	9.91%	10.06%	9.87%	8.68%	9.65%	9.52%	9.47%	9.87%	10.16%	9.79%	9.17%	8.73%	9.11%	8.40%	8.85%	10.37%	12.50%	13.29%	12.62%	12.57%	13.68%	15.15%	14.89%	15.08%	14.25%
Grenada	1.85%	#N/A	1.38%	4.19%	5.88%	6.40%	6.53%	8.88%	8.47%	8.69%	10.33%	7.22%	6.74%	4.13%	3.83%	2.98%	4.94%	4.12%	7.19%	5.78%	6.76%	6.52%	6.90%	8.00%	7.79%	7.33%
Guatemala	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	28.63%	26.32%	27.53%	27.74%	28.98%	31.97%	32.10%	33.61%	39.13%	36.66%	37.86%	#N/A
Guinea	52.21%	51.71%	51.34%	51.74%	51.81%	52.80%	54.90%	53.94%	55.38%	54.89%	53.39%	52.20%	49.13%	48.92%	49.32%	48.14%	48.71%	51.55%	52.15%	52.99%	53.70%	56.37%	55.30%	54.85%	57.29%	55.98%
Guinea-Bissau	13.92%	15.89%	15.33%	15.17%	12.71%	12.30%	17.04%	13.70%	9.51%	11.60%	10.57%	7.23%	12.28%	8.98%	11.56%	10.57%	12.13%	13.41%	13.55%	8.06%	15.54%	13.73%	8.10%	13.03%	18.09%	#N/A
Guyana	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Haiti	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	14.74%	14.01%	13.41%	13.01%	14.25%	14.35%	15.74%	15.87%	17.81%	17.44%	19.99%	18.45%	23.98%	18.54%
Honduras	#N/A	2.77%	3.50%	4.32%	5.32%	8.11%	9.44%	10.88%	14.71%	11.56%	15.43%	14.90%	10.30%	15.25%	11.80%	13.70%	15.46%	16.64%	15.72%	16.12%	15.68%	15.15%	15.28%	15.09%	11.70%	8.86%
Hungary	7.10%	7.08%	7.06%	6.86%	6.46%	6.69%	5.14%	5.72%	5.66%	9.65%	9.00%	8.39%	8.02%	7.33%	6.31%	6.69%	7.51%	8.80%	9.40%	9.22%	8.74%	10.54%	11.67%	10.19%	10.31%	10.21%
Iceland	4.06%	3.69%	3.54%	3.28%	9.24%	9.28%	10.07%	8.16%	7.43%	7.87%	7.57%	7.14%	7.12%	6.94%	6.21%	5.17%	5.67%	6.14%	6.39%	6.48%	5.97%	6.49%	5.35%	4.62%	4.93%	5.36%
India	30.52%	28.99%	29.05%	28.98%	27.61%	27.84%	27.30%	26.96%	26.42%	24.51%	23.73%	23.36%	22.56%	21.91%	23.96%	23.20%	21.35%	21.82%	20.22%	20.40%	19.29%	21.09%	20.43%	17.95%	19.44%	12.73%
Indonesia	16.98%	16.63%	16.47%	16.34%	15.46%	14.64%	15.08%	14.12%	13.45%	14.80%	13.93%	12.36%	13.80%	14.35%	24.08%	21.66%	25.31%	26.72%	25.23%	22.35%	25.71%	28.05%	29.27%	27.57%	32.01%	13.61%
Iran	13.35%	13.75%	14.35%	15.80%	14.92%	13.52%	13.91%	14.43%	14.01%	15.32%	14.51%	14.66%	13.84%	13.50%	10.72%	10.47%	10.55%	9.87%	11.29%	11.64%	11.82%	13.09%	17.80%	17.72%	17.43%	10.38%
Iraq	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	4.86%	4.46%	4.18%	5.45%	4.12%	5.46%	5.28%	4.87%	7.79%	6.68%	7.76%	7.45%
Ireland	4.65%	2.37%	1.64%	1.32%	2.18%	2.42%	#N/A	#N/A	#N/A	5.67%	5.38%	4.78%	4.51%	4.12%	3.60%	3.50%	3.55%	4.04%	4.22%	4.03%	4.06%	4.38%	4.96%	4.87%	4.39%	4.47%
Israel	3.96%	3.75%	3.80%	4.01%	3.78%	3.46%	3.65%	3.56%	3.56%	3.61%	3.71%	3.57%	3.40%	3.32%	10.06%	10.01%	9.10%	9.55%	9.25%	9.03%	9.34%	10.00%	11.63%	10.81%	11.35%	11.78%
Italy	8.07%	7.97%	7.74%	7.73%	7.77%	7.89%	8.14%	8.10%	8.08%	8.08%	8.16%	8.06%	8.06%	7.93%	6.70%	6.42%	6.86%	8.38%	9.01%	8.81%	8.73%	9.31%	10.15%	10.04%	9.39%	9.65%
Japan	3.67%	3.51%	3.33%	3.21%	2.99%	2.81%	2.91%	2.81%	13.00%	13.69%	11.08%	9.56%	9.14%	10.35%	10.46%	9.03%	8.51%	8.70%	8.88%	8.02%	7.31%	7.02%	7.85%	9.07%	8.96%	9.04%
Jordan	15.97%	16.13%	16.82%	13.71%	22.04%	19.66%	18.58%	17.82%	16.58%	15.86%	15.47%	14.97%	14.98%	13.38%	34.64%	33.43%	31.59%	31.08%	33.07%	34.83%	35.29%	37.60%	38.91%	37.23%	40.38%	13.44%
Kazakhstan	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	17.93%	16.20%	16.84%	13.78%	11.81%	11.17%	10.11%	12.48%	17.51%	15.93%	14.35%	15.59%	17.01%	18.33%	19.65%	22.20%	27.96%	23.92%	23.37%	10.56%
Kenya	19.18%	20.31%	20.52%	22.85%	21.65%	23.00%	25.31%	21.88%	24.24%	20.97%	17.66%	21.47%	20.01%	23.09%	34.51%	32.90%	30.84%	33.16%	31.92%	34.17%	36.89%	38.86%	43.56%	43.35%	41.19%	27.08%
Kiribati	30.14%	35.84%	32.90%	30.31%	27.23%	32.30%	31.20%	29.66%	29.26%	38.27%	36.15%	30.35%	27.32%	28.53%	23.82%	22.10%	24.46%	23.37%	27.07%	39.76%	47.41%	62.35%	52.14%	37.34%	36.15%	43.12%
Kuwait	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	3.36%	2.70%	2.60%	2.59%	2.72%	2.58%	2.57%	2.47%	3.85%	3.77%	4.21%	3.82%	3.67%	3.81%	3.88%	4.25%	5.00%	5.43%	6.04%	2.36%
Kyrgyzstan	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	59.08%	57.33%	58.93%	58.49%	62.53%	59.46%	62.98%	64.40%	63.37%	62.63%	60.93%	58.41%	55.38%	55.42%	55.57%	53.76%	52.98%	51.63%	52.95%	52.61%
Lao	41.71%	40.36%	36.50%	37.21%	37.54%	34.71%	37.91%	34.72%	38.65%	31.16%	33.11%	34.26%	34.47%	36.80%	46.26%	45.21%	50.70%	45.32%	44.61%	45.51%	42.43%	42.72%	39.79%	41.58%	40.11%	39.55%

Table 10. NER 'Food' Dataset

Areas	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Latvia	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Lebanon	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Lesotho	36.56%	33.07%	32.10%	28.05%	31.10%	27.66%	24.14%	23.10%	21.51%	25.12%	26.62%	25.95%	23.39%	24.71%	36.25%	37.74%	33.81%	32.72%	34.09%	38.91%	35.04%	35.97%	43.64%	36.56%	25.77%
Liberia	15.06%	16.02%	17.63%	14.17%	16.15%	14.11%	14.58%	14.05%	11.37%	13.59%	13.82%	12.08%	14.21%	15.22%	14.91%	14.31%	8.42%	11.55%	12.97%	13.68%	16.86%	16.06%	16.68%	17.05%	13.37%
Lithuania	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Luxembourg	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Macedonia	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Madagascar	23.15%	21.21%	25.65%	25.28%	26.12%	25.17%	24.95%	22.79%	25.74%	21.91%	22.04%	21.66%	21.78%	26.38%	19.81%	22.68%	16.63%	18.82%	19.38%	19.17%	30.74%	33.17%	33.20%	30.56%	34.10%
Malawi	70.91%	76.40%	75.95%	79.76%	73.80%	65.40%	71.23%	70.22%	69.73%	69.38%	69.32%	69.50%	71.35%	64.58%	60.12%	59.16%	59.06%	56.00%	50.83%	48.20%	53.79%	59.28%	48.08%	44.44%	45.07%
Malaysia	21.14%	19.27%	20.32%	19.82%	17.64%	16.03%	15.72%	15.43%	14.81%	14.73%	13.84%	13.88%	14.52%	16.46%	15.32%	13.37%	12.89%	13.40%	13.18%	13.57%	13.48%	13.35%	11.91%	11.58%	11.88%
Maldives	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Mali	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	63.52%	60.51%	65.65%	62.98%	60.81%	53.24%	56.83%	69.96%	60.06%	48.91%	44.85%	49.76%	43.55%	49.37%	55.70%	63.07%	58.49%	53.72%	67.91%
Malta	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	22.01%	23.33%	22.49%	26.54%	27.71%	22.03%	17.70%	15.01%	13.87%	13.60%	15.52%	11.93%	11.14%	9.62%	9.05%	8.97%
Mauritania	9.44%	10.83%	10.18%	8.79%	8.19%	7.27%	8.13%	8.37%	7.83%	7.14%	7.74%	8.18%	14.14%	16.16%	17.72%	16.99%	18.46%	17.40%	15.42%	16.92%	16.29%	20.95%	22.62%	19.03%	18.38%
Mauritius	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	3.09%	1.49%	6.38%	3.57%	#N/A	12.20%	11.00%	5.55%	7.91%	9.19%
Mexico	4.94%	5.10%	5.03%	4.48%	4.42%	4.58%	4.37%	4.14%	4.01%	4.17%	4.13%	4.10%	4.06%	4.34%	4.47%	3.74%	4.01%	4.08%	3.68%	4.49%	4.42%	3.93%	4.49%	4.16%	4.13%
Moldova	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Mongolia	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	24.76%	25.28%	23.24%	21.20%	24.49%
Montenegro	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Morocco	#N/A	#N/A	#N/A	#N/A	#N/A	24.07%	24.04%	28.42%	20.44%	21.18%	23.24%	21.14%	19.16%	24.71%	23.79%	19.93%	16.03%	18.16%	17.56%	17.98%	19.33%	19.00%	17.11%	17.65%	16.73%
Mozambique	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	51.08%	49.58%	53.64%	68.70%	75.81%	77.34%
Namibia	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	5.87%	4.16%	6.59%	7.26%	7.92%	8.30%
Nepal	36.67%	37.51%	38.17%	28.10%	33.27%	30.91%	30.93%	32.69%	38.03%	43.24%	40.00%	40.75%	41.43%	46.10%	46.25%	44.11%	45.10%	46.69%	44.13%	50.15%	47.65%	44.28%	55.89%	50.49%	47.33%
Netherlands	3.28%	3.23%	3.18%	2.96%	2.35%	2.55%	2.78%	2.48%	2.36%	2.19%	2.01%	1.72%	1.34%	1.65%	1.18%	1.15%	1.52%	1.31%	1.41%	7.87%	7.58%	7.45%	7.25%	6.90%	6.82%
New Zealand	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	3.06%	3.08%	1.91%	#N/A	#N/A	2.58%	3.00%	2.31%	2.43%	#N/A	#N/A	#N/A	1.40%	1.44%	2.32%	3.53%
Nicaragua	6.96%	6.15%	5.21%	5.59%	5.16%	6.41%	6.16%	6.51%	5.80%	4.93%	5.12%	3.56%	4.11%	5.24%	4.49%	#N/A	#N/A	#N/A	#N/A	2.55%	6.07%	5.37%	5.87%	7.54%	7.69%
Niger	34.08%	34.18%	32.60%	32.97%	29.81%	32.75%	36.42%	32.03%	37.83%	34.25%	34.42%	36.06%	34.66%	40.41%	35.07%	41.01%	42.54%	42.38%	40.05%	43.61%	46.18%	44.28%	47.93%	41.89%	49.21%
Nigeria	58.82%	58.29%	56.90%	55.48%	55.48%	57.24%	69.50%	72.35%	64.90%	56.84%	45.85%	38.46%	38.60%	37.49%	40.64%	35.10%	33.47%	35.63%	34.93%	36.41%	42.98%	42.86%	44.07%	45.97%	45.11%
Norway	4.37%	4.49%	4.71%	4.36%	4.02%	3.95%	3.73%	3.75%	3.35%	6.61%	6.60%	6.88%	7.78%	7.81%	8.42%	7.98%	8.28%	8.20%	8.02%	8.07%	6.90%	6.30%	5.53%	4.84%	4.75%
Oman	6.13%	5.32%	5.34%	5.57%	5.79%	5.56%	3.54%	1.96%	1.66%	1.59%	1.89%	1.73%	3.41%	4.07%	4.13%	3.82%	4.40%	4.68%	5.30%	6.36%	5.77%	5.88%	5.14%	4.67%	4.07%
Pakistan	49.89%	48.14%	44.75%	44.25%	44.34%	38.16%	40.48%	42.72%	38.22%	35.65%	35.62%	36.85%	36.11%	34.90%	35.56%	34.33%	33.07%	31.82%	33.52%	28.61%	27.32%	27.51%	27.04%	25.61%	26.05%
Panama	11.22%	12.34%	11.59%	10.20%	8.57%	7.60%	6.47%	5.86%	5.35%	4.92%	6.01%	5.49%	6.00%	6.44%	4.35%	5.50%	5.89%	5.02%	5.49%	4.19%	4.35%	5.04%	4.78%	5.37%	5.75%
Papua New Guinea	37.84%	36.07%	34.28%	32.42%	30.15%	30.94%	28.77%	27.85%	25.33%	23.62%	23.05%	24.11%	22.47%	20.76%	20.77%	22.71%	8.06%	10.34%	11.13%	16.83%	24.17%	25.05%	22.00%	20.89%	21.81%
Paraguay	29.89%	29.44%	26.82%	27.64%	25.88%	27.33%	26.15%	25.52%	25.42%	24.86%	22.77%	18.85%	15.31%	17.42%	15.76%	19.53%	19.87%	18.84%	19.18%	17.18%	17.96%	18.59%	20.05%	20.18%	21.36%
Peru	5.73%	5.80%	5.43%	5.73%	6.50%	6.22%	6.19%	5.48%	6.17%	5.51%	5.64%	5.16%	4.40%	4.59%	4.42%	4.85%	4.14%	3.92%	3.72%	5.22%	5.95%	5.44%	6.08%	5.25%	4.81%
Philippines	16.96%	17.09%	16.13%	16.18%	17.42%	16.61%	16.99%	15.89%	16.39%	15.13%	14.99%	14.50%	13.48%	11.03%	12.77%	13.37%	12.12%	13.66%	13.27%	11.66%	12.49%	13.43%	12.65%	13.63%	15.03%
Poland	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Portugal	14.47%	16.04%	15.35%	14.55%	14.37%	11.32%	11.48%	10.64%	9.96%	9.96%	8.56%	8.09%	7.97%	9.64%	9.25%	8.04%	7.00%	6.79%	7.88%	7.22%	7.05%	6.91%	5.92%	6.29%	6.16%
Qatar	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Rep. Korea	35.18%	31.60%	33.77%	35.76%	33.38%	31.87%	28.16%	25.52%	26.37%	13.21%	12.90%	12.71%	12.75%	15.35%	14.39%	16.19%	16.38%	17.81%	19.66%	18.00%	17.40%	14.86%	12.85%	11.56%	10.45%
Romania	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	17.09%	18.24%	18.92%	17.43%	18.25%	17.14%
Russian Federation	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Rwanda	53.36%	67.33%	57.22%	58.28%	60.48%	64.79%	74.30%	66.77%	66.06%	64.75%	65.49%	64.96%	63.55%	61.02%	71.96%	57.24%	52.74%	56.03%	49.51%	54.52%	55.01%	57.87%	53.08%	51.71%	59.22%
Samoa	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	17.22%	14.31%	14.41%	15.29%
Sao Tome and Principe	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A

Table 10. NER 'Food' Dataset (Cont.)

Areas	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Latvia	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	14.04%	12.27%	10.32%	10.00%	10.09%	9.31%	10.08%	9.65%	12.39%	11.69%	12.25%	12.58%	13.13%	12.94%	12.78%	14.21%	16.65%	16.96%	13.16%	7.02%
Lebanon	#N/A	#N/A	11.77%	22.56%	18.32%	14.86%	15.23%	14.30%	14.27%	14.22%	13.01%	14.47%	12.91%	12.31%	11.97%	10.90%	10.99%	10.49%	10.69%	9.70%	9.62%	9.95%	9.98%	9.08%	9.04%	9.55%
Lesotho	25.82%	25.64%	28.63%	25.43%	24.40%	22.52%	21.66%	20.79%	18.17%	21.19%	20.86%	18.57%	17.98%	17.06%	14.48%	14.13%	14.49%	12.92%	11.92%	10.52%	11.47%	10.85%	13.12%	12.77%	9.59%	9.30%
Liberia	15.06%	15.93%	17.59%	27.47%	37.10%	56.37%	79.90%	#N/A	#N/A	#N/A	#N/A	68.71%	54.25%	43.11%	39.12%	27.29%	21.41%	33.31%	42.69%	45.90%	39.94%	34.07%	37.04%	34.11%	33.13%	26.76%
Lithuania	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	9.79%	11.60%	8.94%	8.41%	10.60%	10.06%	9.59%	9.12%	14.47%	13.49%	13.67%	15.69%	17.44%	16.61%	16.70%	18.07%	19.03%	17.00%	15.17%	3.58%
Luxembourg	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	4.45%	4.46%	4.36%	4.25%	3.96%	3.17%	3.13%	3.35%	3.60%	3.74%	3.54%	3.46%	3.66%	4.05%	4.00%	3.69%	3.91%
Macedonia	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	13.45%	13.56%	17.71%	17.77%	17.27%	19.17%	19.47%	16.19%	16.94%	16.85%	20.76%	25.53%	26.33%	26.92%	26.52%	29.64%	35.87%	34.38%	32.84%	14.94%
Madagascar	33.60%	31.83%	34.56%	34.54%	35.59%	38.29%	39.19%	39.80%	36.08%	38.38%	39.85%	40.77%	38.44%	37.37%	34.55%	30.16%	33.36%	33.23%	33.26%	40.34%	38.38%	36.91%	36.79%	40.31%	42.06%	40.45%
Malawi	49.57%	49.40%	52.16%	53.43%	47.74%	50.04%	47.23%	57.21%	53.64%	50.44%	54.17%	49.46%	59.14%	66.14%	#N/A	#N/A	73.18%	73.46%	74.29%	63.27%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Malaysia	11.72%	10.92%	11.28%	12.14%	11.37%	10.90%	10.61%	10.63%	9.86%	9.91%	9.64%	9.42%	8.92%	9.20%	7.72%	7.62%	7.25%	6.85%	6.59%	6.54%	6.57%	7.05%	7.58%	7.19%	7.78%	9.21%
Maldives	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	9.72%	8.90%	8.54%	8.82%	9.49%	9.76%	10.53%	11.30%	9.78%	11.92%	12.67%
Mali	66.55%	63.71%	71.08%	64.50%	67.62%	73.08%	60.16%	63.07%	65.53%	63.11%	65.36%	61.56%	63.74%	61.70%	55.73%	53.59%	56.16%	59.30%	53.92%	59.71%	55.42%	60.98%	61.57%	67.76%	65.28%	64.12%
Malta	8.49%	9.07%	9.14%	8.75%	8.52%	8.39%	8.28%	7.28%	6.73%	7.88%	8.44%	7.58%	7.40%	6.72%	5.93%	5.84%	5.70%	6.26%	7.11%	6.69%	6.69%	7.48%	7.76%	7.34%	6.48%	7.46%
Mauritania	14.73%	15.93%	19.24%	19.97%	17.25%	17.50%	15.85%	13.59%	11.82%	11.66%	12.82%	14.52%	21.12%	13.88%	15.21%	17.08%	16.70%	17.23%	17.69%	12.29%	14.96%	15.44%	17.24%	18.96%	13.39%	13.25%
Mauritius	4.66%	2.35%	2.36%	4.10%	3.90%	4.60%	4.42%	5.39%	5.33%	5.27%	4.39%	6.67%	5.11%	4.68%	7.92%	6.62%	6.30%	6.44%	6.37%	6.07%	5.84%	6.94%	8.29%	8.55%	7.81%	7.33%
Mexico	3.95%	4.00%	4.05%	4.01%	4.24%	3.94%	4.11%	3.94%	3.93%	3.82%	3.90%	3.62%	3.71%	3.86%	13.20%	14.51%	14.83%	15.08%	15.42%	16.01%	15.81%	16.55%	16.80%	13.97%	15.55%	15.95%
Moldova	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	35.02%	38.18%	33.55%	35.17%	34.61%	34.43%	32.97%	33.60%	35.91%	36.38%	35.59%	33.53%	34.92%	31.31%	29.03%	22.83%	30.79%	25.48%	25.77%	26.60%
Mongolia	20.80%	21.15%	20.82%	22.57%	23.53%	27.36%	27.54%	29.06%	24.21%	23.62%	25.90%	24.37%	25.63%	25.83%	26.37%	21.97%	20.10%	17.58%	19.52%	16.97%	16.49%	17.21%	20.91%	21.19%	17.58%	18.43%
Montenegro	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	11.01%	12.98%	16.69%	15.92%	14.84%	16.04%
Morocco	17.90%	17.04%	18.96%	20.40%	18.12%	18.80%	16.55%	17.41%	18.79%	15.45%	19.53%	17.02%	17.50%	16.23%	23.66%	21.07%	21.33%	23.79%	25.09%	24.79%	24.51%	27.00%	30.39%	29.79%	29.32%	17.43%
Mozambique	75.19%	68.01%	64.20%	60.89%	61.90%	55.88%	56.15%	54.73%	48.33%	77.53%	75.43%	70.78%	67.90%	64.75%	61.92%	57.13%	52.55%	51.03%	50.21%	43.41%	39.72%	40.77%	40.51%	41.09%	45.64%	43.60%
Namibia	7.50%	5.87%	6.04%	6.15%	7.20%	6.20%	5.22%	5.77%	5.04%	5.33%	5.54%	9.83%	5.89%	8.91%	8.72%	7.45%	6.66%	6.65%	6.29%	6.61%	6.15%	6.07%	5.59%	5.02%	4.70%	4.93%
Nepal	45.10%	49.27%	50.18%	50.80%	50.46%	49.40%	46.85%	48.70%	45.51%	46.95%	44.35%	44.29%	45.87%	43.23%	43.12%	41.96%	41.91%	43.17%	43.47%	43.21%	42.73%	42.07%	41.76%	41.18%	41.57%	44.14%
Netherlands	6.59%	6.25%	5.98%	5.80%	5.54%	5.39%	5.38%	5.27%	5.23%	5.12%	5.01%	4.94%	4.91%	4.77%	3.99%	3.95%	4.26%	5.08%	5.36%	5.06%	5.02%	5.37%	5.89%	5.64%	5.40%	5.60%
New Zealand	3.22%	6.68%	7.50%	7.19%	7.45%	7.06%	6.59%	6.24%	6.84%	7.44%	7.83%	7.47%	6.14%	5.92%	5.28%	4.79%	5.26%	6.59%	7.70%	8.14%	7.59%	8.63%	8.55%	7.73%	9.45%	10.23%
Nicaragua	8.47%	7.89%	11.48%	10.49%	9.64%	12.42%	14.80%	14.04%	11.64%	10.79%	10.71%	9.68%	13.17%	12.92%	12.22%	13.40%	13.64%	14.74%	12.43%	12.73%	13.19%	11.55%	11.43%	11.31%	8.21%	8.78%
Niger	44.11%	43.34%	50.66%	46.21%	51.84%	51.79%	58.60%	55.97%	57.37%	55.19%	62.07%	56.68%	65.66%	62.16%	62.40%	68.47%	70.67%	70.75%	66.06%	73.41%	73.27%	72.57%	77.22%	63.81%	71.13%	60.02%
Nigeria	51.10%	58.60%	61.36%	62.83%	59.76%	67.78%	72.92%	76.56%	77.93%	#N/A	79.01%	80.00%	#N/A	#N/A	15.86%	20.13%	27.09%	28.60%	24.58%	29.62%	27.58%	27.41%	29.33%	22.67%	23.68%	44.01%
Norway	5.68%	6.41%	6.56%	6.09%	6.72%	6.49%	6.70%	5.70%	5.54%	6.05%	5.69%	5.07%	4.83%	4.74%	4.18%	4.00%	4.48%	5.12%	5.18%	5.32%	5.27%	5.79%	6.34%	6.00%	6.26%	6.77%
Oman	3.78%	3.75%	3.74%	3.29%	3.53%	3.35%	3.18%	3.04%	2.87%	2.94%	2.89%	2.50%	2.47%	2.49%	1.97%	2.29%	2.08%	2.23%	2.69%	2.31%	2.49%	2.96%	3.71%	2.89%	3.35%	3.13%
Pakistan	26.97%	25.52%	23.91%	25.49%	25.29%	24.19%	23.47%	25.36%	24.53%	25.01%	25.09%	25.18%	25.18%	24.56%	32.57%	28.74%	28.90%	29.28%	29.87%	30.21%	31.16%	32.02%	32.10%	35.07%	38.50%	19.93%
Panama	5.63%	5.70%	5.23%	6.40%	5.39%	6.21%	6.37%	6.28%	6.63%	7.30%	7.67%	7.47%	8.41%	7.66%	8.04%	8.72%	8.85%	8.77%	8.21%	7.77%	7.23%	7.63%	7.83%	7.67%	7.72%	7.67%
Papua New Guinea	16.68%	21.13%	22.76%	22.80%	27.03%	27.23%	24.95%	21.21%	17.53%	18.63%	19.66%	17.42%	18.77%	21.38%	23.04%	24.86%	24.23%	22.55%	22.95%	22.50%	24.53%	24.24%	24.54%	23.38%	21.03%	18.21%
Paraguay	17.41%	18.97%	19.28%	17.33%	16.71%	17.71%	18.57%	18.57%	18.61%	19.87%	19.21%	19.30%	20.04%	22.10%	20.63%	23.26%	25.04%	24.51%	21.89%	21.13%	20.25%	21.45%	18.16%	13.59%	21.26%	22.25%
Peru	4.91%	5.37%	6.15%	6.03%	6.52%	6.52%	6.70%	6.97%	6.48%	6.39%	6.90%	6.40%	6.73%	6.79%	19.87%	19.61%	19.15%	19.18%	19.57%	19.35%	18.79%	19.27%	21.03%	20.96%	21.80%	4.75%
Philippines	15.38%	14.95%	14.93%	15.37%	16.46%	16.02%	16.76%	16.95%	17.15%	17.35%	17.95%	16.77%	16.56%	16.69%	29.48%	26.09%	26.14%	25.00%	24.52%	25.54%	27.68%	30.20%	33.40%	32.20%	33.98%	14.07%
Poland	#N/A	#N/A	#N/A	#N/A	10.30%	10.42%	9.16%	9.92%	7.98%	15.09%	15.63%	13.54%	12.91%	11.07%	10.79%	11.76%	11.58%	11.39%	12.12%	13.23%	13.29%	14.38%	16.83%	13.17%	13.59%	12.94%
Portugal	6.06%	6.41%	5.20%	5.79%	6.29%	6.23%	5.92%	5.69%	5.94%	9.27%	9.18%	8.91%	9.18%	9.11%	7.78%	7.84%	8.32%	10.22%	11.02%	10.69%	10.79%	11.67%	12.67%	11.56%	10.86%	12.22%
Qatar	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1.34%	1.26%	1.43%	1.44%	1.99%	2.17%	2.14%	2.32%	2.58%	2.41%	2.32%	#N/A
Rep. Korea	9.66%	9.84%	10.74%	11.91%	11.50%	11.15%	10.04%	9.51%	9.74%	9.62%	8.95%	7.59%	5.44%	6.65%	7.66%	6.60%	6.68%	6.86%	7.05%	7.82%	8.20%	8.36%	7.11%	6.14%	6.80%	6.36%
Romania	16.03%	13.89%	14.53%	15.05%	16.05%	17.30%	17.77%	19.85%	17.61%	17.07%	15.77%	17.41%	17.13%	18.29%	13.54%	13.99%	14.43%	17.04%	19.15%	20.80%	22.19%	26.23%	27.66%	23.29%	23.26%	12.67%
Russian Federation	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	10.86%	10.82%	10.85%	10.98%	10.74%	10.75%	9.75%	8.76%	10.45%	12.13%	12.04%	12.33%	14.64%	15.91%	17.40%	18.49%	22.75%	20.63%	22.22%	25.82%
Rwanda	41.83%	44.55%	42.68%	47.10%	48.22%	59.07%	58.30%	50.19%	#N/A	61.41%	61.05%	54.40%	56.21%	54.70%	61.58%	57.80%	62.01%	56.66%	52.01%	50.91%	47.46%	44.89%	40.13%	54.00%	54.85%	54.54%
Samoa	15.14%	14.98%	16.25%	14.99%	16.13%	14.47%	14.59%	15.51%	17.61%	17.82%	17.98%	15.15%	15.46%	13.83%	13.65%	12.92%	13.36%	13.82%	15.23%	14.64%	15.45%	15.40%	16.09%	20.42%	22.36%	20.54%
Sao Tome and Principe	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	13.71%	14.40%	13.57%	16.43%	16.83%	17.63%	20.01%	17.92%	20.45%	15.55%	18.35%

Table 10. NER 'Food' Dataset

Areas	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Saudi Arabia	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	2.81%	2.83%	2.66%	3.02%	1.94%	1.94%	1.95%	1.92%	2.14%	2.57%	3.33%	3.66%	4.20%	4.41%	5.10%	5.10%	5.83%	4.63%
Senegal	25.46%	25.97%	27.39%	27.46%	27.86%	25.55%	27.11%	21.78%	24.75%	16.57%	23.43%	14.84%	22.55%	28.51%	24.65%	22.00%	14.70%	23.58%	17.92%	19.58%	24.33%	18.18%	15.06%	16.08%	17.66%
Serbia	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Seychelles	6.07%	6.28%	5.79%	5.77%	5.60%	6.06%	7.06%	5.18%	3.17%	4.55%	5.48%	5.32%	7.43%	9.56%	9.14%	8.40%	7.32%	8.16%	7.74%	9.04%	8.45%	8.96%	6.98%	7.11%	5.94%
Sierra Leone	15.68%	16.98%	18.25%	16.16%	17.14%	16.74%	18.60%	15.30%	14.51%	15.21%	13.67%	10.83%	13.37%	18.38%	11.55%	11.21%	6.24%	11.02%	10.30%	10.68%	12.43%	13.38%	10.81%	8.88%	8.86%
Singapore	13.74%	11.64%	11.85%	12.38%	12.00%	11.39%	9.33%	9.99%	9.21%	8.24%	7.86%	8.05%	9.10%	8.75%	8.09%	8.80%	7.43%	6.10%	6.60%	5.71%	5.46%	5.01%	5.21%	4.14%	4.15%
Slovakia	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Slovenia	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Solomon Islands	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
South Africa	6.46%	5.60%	5.62%	5.26%	5.59%	5.85%	5.88%	4.76%	5.43%	4.93%	5.22%	4.78%	4.00%	3.91%	15.64%	13.84%	14.96%	15.47%	16.73%	18.58%	17.65%	15.94%	17.22%	14.17%	10.42%
Spain	7.46%	6.70%	7.41%	6.44%	6.26%	6.40%	5.66%	5.65%	5.24%	5.21%	5.18%	5.06%	5.25%	5.33%	5.33%	4.86%	4.67%	4.99%	5.06%	5.17%	4.60%	5.16%	4.81%	5.18%	4.98%
Sri Lanka	3.36%	2.42%	3.50%	14.98%	4.34%	10.25%	11.51%	12.45%	13.38%	15.53%	13.66%	13.99%	14.89%	20.30%	21.32%	13.99%	8.53%	9.40%	14.34%	16.90%	14.39%	11.95%	13.58%	6.36%	10.81%
St. Kitts and Nevis	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1.50%	2.62%	1.23%	5.15%
St. Lucia	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	13.63%	12.59%	13.39%	11.45%	8.18%	6.55%
St. Vincent and the Grenadines	5.54%	5.89%	7.09%	7.87%	7.30%	7.24%	8.52%	7.87%	8.59%	10.10%	13.33%	10.93%	10.15%	7.95%	12.51%	5.61%	6.50%	5.48%	8.97%	11.01%	3.98%	4.34%	#N/A	#N/A	#N/A
Sudan	52.27%	49.05%	54.00%	54.67%	49.40%	51.37%	57.43%	51.48%	53.87%	54.42%	55.33%	58.35%	61.37%	60.52%	55.73%	47.27%	45.16%	50.75%	50.65%	56.96%	56.62%	44.92%	46.66%	43.80%	60.75%
Suriname	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	4.64%	6.52%	6.91%	6.18%	5.04%	5.61%	7.75%	6.97%	7.19%	7.94%	6.03%
Swaziland	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Sweden	3.86%	3.78%	3.69%	3.62%	3.43%	3.31%	3.24%	3.19%	2.77%	2.90%	2.71%	2.63%	2.75%	2.83%	2.71%	2.96%	3.16%	3.11%	3.04%	11.36%	9.69%	8.20%	6.99%	6.62%	6.47%
Switzerland	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	3.25%	3.19%	3.10%	3.50%	3.47%	3.66%	3.68%	3.63%	3.76%	3.73%	3.56%	3.32%	3.52%	3.23%	3.21%	3.04%
Tajikistan	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Tanzania	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Thailand	#N/A	#N/A	#N/A	#N/A	35.58%	38.94%	30.72%	31.54%	32.34%	29.69%	27.73%	24.00%	25.05%	16.00%	19.29%	16.31%	14.29%	17.08%	14.25%	14.16%	12.04%	11.66%	14.59%	13.55%	15.77%
Timor-Leste	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Togo	42.42%	43.46%	45.66%	35.04%	34.19%	33.09%	31.80%	29.44%	24.49%	23.39%	26.74%	25.06%	25.68%	22.06%	23.36%	22.87%	18.46%	16.72%	24.26%	23.02%	27.08%	30.28%	30.27%	29.50%	29.05%
Tonga	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	22.14%	18.20%	17.38%	15.79%	16.15%
Trinidad and Tobago	6.46%	6.66%	5.76%	5.62%	6.31%	6.48%	6.08%	5.38%	5.74%	5.38%	5.49%	5.53%	6.08%	5.66%	4.74%	5.68%	6.00%	6.12%	6.25%	6.61%	6.85%	7.15%	7.71%	7.69%	6.80%
Tunisia	29.35%	27.45%	26.82%	25.59%	24.26%	20.96%	24.68%	20.80%	18.39%	20.62%	23.16%	19.17%	22.02%	23.15%	24.16%	20.67%	20.97%	19.34%	18.32%	20.73%	18.73%	16.27%	18.63%	16.67%	16.99%
Turkey	27.52%	26.44%	25.46%	23.59%	22.71%	22.27%	21.18%	20.81%	19.84%	20.61%	20.22%	18.91%	16.58%	17.95%	18.00%	16.90%	15.99%	16.26%	16.49%	17.38%	16.48%	16.84%	15.59%	16.29%	15.89%
Turkmenistan	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Tuvalu	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Uganda	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	14.16%	15.44%	12.86%	16.17%
Ukraine	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
United Arab Emirates	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1.88%	1.86%	1.68%	1.88%	1.78%	1.75%	1.68%	1.78%	1.62%	1.58%	1.61%
United Kingdom	4.77%	4.96%	4.90%	4.76%	4.54%	4.35%	4.27%	3.87%	3.77%	3.78%	3.74%	3.63%	3.67%	4.02%	3.85%	3.43%	3.64%	3.40%	3.52%	3.43%	3.09%	3.09%	2.88%	2.86%	2.63%
United States of America	3.56%	3.36%	3.29%	3.13%	3.02%	2.87%	2.99%	3.00%	2.93%	8.63%	8.14%	7.92%	7.89%	8.24%	8.26%	7.92%	7.65%	7.40%	7.36%	7.39%	7.01%	7.03%	6.68%	6.34%	6.12%
Uruguay	11.83%	11.52%	11.44%	11.88%	9.72%	9.63%	10.02%	11.47%	10.41%	11.11%	9.87%	8.73%	8.37%	10.34%	8.64%	7.95%	6.63%	6.71%	6.79%	5.31%	4.90%	6.70%	6.90%	7.55%	8.20%
Uzbekistan	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Vanuatu	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	32.76%	34.69%	34.01%	28.25%	25.85%	27.03%	24.69%
Venezuela	5.97%	5.59%	5.35%	5.46%	5.55%	5.54%	5.79%	5.38%	5.76%	5.67%	5.72%	5.87%	5.90%	6.45%	6.54%	6.34%	7.10%	6.64%	6.57%	7.81%	8.12%	8.11%	7.48%	7.38%	7.43%
Viet Nam	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	30.49%	29.51%
Yemen	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Zambia	6.47%	6.07%	5.83%	5.48%	4.67%	6.08%	4.55%	6.05%	6.99%	6.67%	9.24%	7.29%	5.50%	6.56%	7.00%	5.95%	5.68%	5.01%	6.54%	8.91%	5.44%	5.21%	5.09%	5.12%	5.00%
Zimbabwe	6.77%	5.71%	7.20%	6.50%	2.69%	5.34%	3.73%	2.95%	3.64%	2.74%	3.72%	2.48%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1.99%	1.69%	1.58%	1.56%	4.29%	4.36%
World Total	7.12%	6.89%	6.86%	6.55%	6.36%	6.22%	6.21%	5.98%	5.75%	7.14%	6.85%	7.22%	7.22%	7.46%	7.64%	7.37%	7.27%	7.32%	7.28%	7.52%	7.53%	7.59%	7.47%	7.36%	7.12%

Table 10. NER 'Food' Dataset (Cont.)

Areas	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Saudi Arabia	4.18%	4.59%	4.30%	4.15%	3.96%	3.79%	3.64%	3.39%	3.36%	3.80%	3.81%	3.81%	3.63%	3.63%	6.70%	6.57%	6.54%	6.20%	6.03%	6.10%	6.34%	6.88%	7.19%	7.57%	7.81%	3.87%
Senegal	16.98%	16.96%	15.94%	18.55%	18.95%	15.96%	15.41%	15.90%	15.37%	17.53%	16.65%	13.89%	14.23%	16.61%	14.60%	14.71%	11.25%	15.01%	15.04%	16.22%	13.53%	15.73%	24.07%	17.54%	17.37%	15.13%
Serbia	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	12.76%	10.61%	12.00%	11.63%	10.61%	10.18%
Seychelles	6.41%	6.62%	6.86%	6.40%	6.32%	5.77%	6.62%	5.98%	5.88%	6.57%	6.97%	6.95%	5.45%	4.70%	5.06%	3.43%	4.22%	5.92%	4.34%	5.99%	6.96%	6.30%	5.51%	4.64%	4.50%	4.72%
Sierra Leone	12.35%	10.97%	13.54%	15.60%	15.76%	14.51%	17.66%	17.25%	21.55%	22.48%	26.55%	24.41%	23.27%	20.96%	17.52%	22.48%	22.12%	21.66%	17.82%	16.82%	19.63%	16.75%	20.20%	19.03%	19.96%	21.85%
Singapore	3.64%	3.29%	3.09%	2.89%	3.09%	2.86%	2.81%	2.66%	1.98%	1.83%	2.01%	1.75%	1.31%	1.49%	3.13%	3.14%	3.16%	3.21%	3.13%	3.11%	3.04%	3.08%	3.41%	3.31%	3.24%	1.20%
Slovakia	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	6.94%	6.18%	9.14%	8.79%	9.51%	9.70%	10.00%	8.86%	8.76%	9.22%	10.63%	11.09%	10.29%	9.87%	10.62%	11.97%	11.84%	10.74%	10.47%
Slovenia	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	3.77%	4.82%	5.09%	6.12%	6.50%	6.87%	7.20%	7.28%	6.43%	6.55%	7.03%	8.61%	9.04%	8.52%	8.14%	8.91%	9.89%	10.38%	9.80%	10.21%
Solomon Islands	#N/A	#N/A	#N/A	#N/A	17.29%	17.37%	16.00%	14.90%	14.65%	14.23%	14.93%	15.56%	13.81%	14.04%	16.49%	19.13%	19.43%	18.61%	21.19%	24.52%	25.08%	23.39%	25.00%	22.77%	27.67%	22.94%
South Africa	12.32%	15.51%	15.47%	14.85%	17.17%	18.57%	20.89%	19.13%	19.23%	20.02%	17.34%	17.31%	15.27%	13.73%	9.81%	8.12%	7.38%	10.87%	12.99%	13.28%	12.87%	12.60%	10.99%	11.09%	12.96%	18.30%
Spain	4.75%	4.73%	4.29%	4.37%	4.49%	4.22%	4.22%	4.02%	3.78%	8.03%	7.96%	7.65%	7.32%	7.09%	6.16%	6.09%	6.63%	7.90%	8.55%	8.54%	8.45%	9.05%	9.49%	8.75%	8.35%	9.23%
Sri Lanka	12.36%	9.21%	10.75%	11.59%	9.66%	9.42%	10.34%	10.40%	10.68%	10.38%	8.28%	6.85%	6.21%	6.81%	6.38%	6.37%	6.32%	6.20%	5.73%	5.23%	7.21%	7.05%	5.29%	4.64%	4.67%	4.61%
St. Kitts and Nevis	2.47%	1.32%	3.16%	2.49%	4.25%	4.07%	2.40%	3.18%	2.67%	2.86%	4.61%	2.49%	3.63%	3.47%	6.68%	5.53%	4.85%	5.41%	4.75%	4.85%	6.16%	6.51%	6.11%	6.78%	6.30%	5.20%
St. Lucia	#N/A	#N/A	#N/A	3.74%	#N/A	4.62%	3.45%	6.15%	7.40%	7.03%	6.82%	9.73%	8.78%	7.03%	8.33%	8.15%	7.07%	8.44%	8.54%	8.39%	8.29%	8.47%	8.07%	3.98%	7.65%	7.73%
St. Vincent and the Grenadines	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	2.60%	3.82%	2.26%	#N/A	#N/A	4.05%	4.54%	5.08%	5.37%	5.65%	5.62%	7.27%	8.95%	8.09%	9.53%	8.70%
Sudan	54.23%	42.02%	51.96%	40.67%	41.32%	49.87%	50.13%	42.93%	51.51%	47.71%	50.17%	46.47%	48.39%	47.22%	47.94%	49.84%	47.49%	49.39%	48.00%	47.65%	45.50%	40.00%	39.73%	38.70%	36.69%	4.37%
Suriname	7.39%	8.15%	7.88%	9.41%	11.10%	12.37%	12.05%	11.94%	10.79%	11.03%	10.82%	10.73%	13.25%	10.69%	9.78%	10.35%	8.86%	8.52%	9.49%	9.27%	9.89%	10.35%	9.00%	9.43%	9.44%	10.55%
Swaziland	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1.02%	#N/A	#N/A	2.96%	3.19%	3.77%	5.00%	#N/A	3.81%	2.67%	3.81%	2.99%	2.10%
Sweden	8.08%	8.94%	9.22%	8.76%	9.79%	9.80%	9.63%	7.47%	7.44%	7.74%	7.59%	6.50%	6.04%	5.61%	4.88%	4.43%	4.80%	5.68%	5.92%	5.58%	5.53%	5.98%	6.40%	6.00%	6.24%	6.47%
Switzerland	3.11%	3.01%	3.04%	2.86%	6.26%	6.21%	6.28%	5.83%	6.20%	7.13%	6.64%	5.51%	5.39%	5.17%	4.85%	4.93%	5.28%	6.08%	6.26%	6.03%	5.75%	5.75%	6.25%	6.45%	6.50%	6.74%
Tajikistan	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	42.70%	43.21%	46.48%	51.34%	50.61%	51.62%	45.03%	45.90%	50.66%	44.32%	46.58%	44.78%	47.30%	50.10%	50.98%	47.40%	49.69%	56.18%	55.30%	54.62%
Tanzania	#N/A	#N/A	13.59%	13.65%	13.65%	14.43%	14.51%	13.67%	12.79%	13.12%	12.67%	12.75%	15.09%	12.74%	12.39%	13.14%	15.60%	12.72%	14.30%	12.74%	13.92%	12.86%	11.18%	11.22%	12.04%	12.64%
Thailand	13.18%	12.13%	10.91%	8.76%	8.36%	8.65%	8.25%	8.56%	7.98%	6.77%	6.48%	7.04%	8.18%	8.28%	14.53%	13.39%	13.74%	14.51%	14.64%	14.92%	15.85%	16.69%	17.95%	17.45%	18.55%	3.39%
Timor-Leste	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	16.41%	16.25%	15.79%	16.21%	16.72%	15.12%	13.34%	14.81%	14.81%	11.91%	13.12%	10.79%	11.66%
Togo	28.67%	27.66%	32.38%	33.77%	33.77%	33.36%	35.33%	48.23%	42.14%	39.58%	37.79%	32.65%	33.21%	32.73%	32.95%	36.48%	37.42%	36.39%	36.20%	37.25%	40.61%	34.22%	41.24%	34.44%	37.44%	44.17%
Tonga	15.46%	14.96%	17.28%	14.61%	13.50%	7.77%	10.70%	11.75%	12.15%	11.20%	13.84%	13.99%	15.08%	11.86%	13.10%	13.26%	12.09%	10.80%	13.76%	14.79%	14.54%	18.34%	16.66%	16.30%	17.65%	16.00%
Trinidad and Tobago	6.17%	5.95%	4.65%	4.38%	4.33%	4.27%	4.33%	3.71%	3.29%	3.42%	3.42%	3.17%	3.18%	2.96%	2.87%	3.07%	2.90%	2.66%	2.61%	2.60%	2.32%	2.64%	3.04%	2.98%	3.10%	3.83%
Tunisia	16.54%	16.29%	15.50%	16.81%	17.38%	18.08%	15.65%	16.50%	13.00%	14.19%	17.75%	13.68%	15.06%	14.49%	18.81%	18.08%	18.81%	20.80%	21.60%	20.54%	20.24%	20.91%	22.40%	21.04%	20.57%	11.01%
Turkey	16.15%	14.23%	14.57%	14.06%	14.01%	13.43%	12.72%	11.97%	12.47%	11.70%	11.89%	10.49%	17.98%	16.40%	13.63%	10.86%	11.68%	14.72%	15.81%	17.16%	16.28%	18.04%	19.90%	17.98%	18.71%	21.90%
Turkmenistan	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	43.89%	50.08%	61.39%	65.31%	48.39%	55.17%	61.78%	64.61%	15.45%	27.58%	27.94%	39.96%	60.22%	53.13%	49.05%	27.69%	24.74%	18.40%	18.15%	43.86%
Tuvalu	#N/A	#N/A	#N/A	#N/A	7.73%	10.42%	10.03%	7.96%	9.42%	10.34%	11.40%	10.41%	8.66%	8.20%	9.24%	8.37%	15.98%	13.33%	18.57%	22.69%	16.56%	13.67%	14.56%	16.29%	16.35%	11.16%
Uganda	13.79%	21.49%	23.51%	25.11%	30.00%	29.95%	29.86%	28.26%	24.76%	19.65%	15.68%	18.39%	19.72%	19.54%	22.46%	23.26%	22.23%	23.58%	21.10%	19.48%	17.32%	15.86%	13.75%	13.90%	13.14%	11.86%
Ukraine	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	18.47%	21.52%	22.05%	23.09%	24.31%	25.68%	23.66%	21.59%	15.58%	17.43%	17.57%	17.88%	18.73%	24.85%	28.35%	33.90%	42.72%	34.01%	35.28%	19.67%
United Arab Emirates	2.01%	2.08%	2.04%	2.17%	1.65%	1.59%	1.76%	1.66%	2.03%	2.00%	1.98%	1.65%	1.76%	1.88%	3.73%	3.64%	4.11%	4.00%	4.60%	5.72%	5.89%	5.78%	5.92%	7.02%	7.70%	3.59%
United Kingdom	2.65%	2.58%	2.56%	2.42%	2.56%	2.51%	2.54%	2.24%	2.10%	5.66%	5.64%	5.75%	5.70%	5.49%	5.00%	4.64%	4.77%	5.05%	5.51%	5.28%	5.22%	5.67%	5.57%	5.14%	5.16%	5.13%
United States of America	6.04%	5.83%	5.74%	5.70%	5.75%	5.72%	5.45%	5.30%	5.21%	5.09%	5.00%	4.82%	4.66%	4.62%	4.35%	4.42%	4.47%	4.40%	4.29%	4.22%	4.11%	4.13%	4.26%	4.32%	4.32%	4.56%
Uruguay	6.66%	7.10%	7.17%	6.29%	4.94%	5.87%	7.09%	6.26%	6.69%	6.09%	6.22%	5.40%	4.82%	6.99%	17.62%	16.51%	12.51%	11.67%	12.81%	14.02%	14.99%	16.27%	19.00%	18.17%	20.93%	4.22%
Uzbekistan	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	22.71%	18.93%	20.44%	20.23%	20.63%	14.99%	15.10%	13.09%	39.09%	29.51%	21.95%	19.11%	18.01%	17.48%	20.51%	21.71%	21.65%	24.90%	25.34%	10.58%
Vanuatu	24.27%	24.37%	23.41%	21.69%	23.29%	20.29%	20.64%	19.94%	17.00%	18.02%	19.84%	20.28%	20.74%	17.75%	15.73%	16.77%	16.16%	15.92%	16.28%	16.11%	15.27%	16.53%	16.93%	15.49%	19.11%	18.89%
Venezuela	6.95%	7.26%	7.87%	7.34%	6.88%	6.74%	6.70%	6.76%	6.64%	6.70%	6.97%	6.80%	7.40%	8.13%	13.86%	14.70%	12.07%	12.71%	12.68%	13.73%	15.33%	19.00%	24.13%	31.03%	33.02%	8.11%
Viet Nam	27.93%	28.24%	28.66%	26.01%	24.97%	24.92%	23.81%	23.92%	22.09%	20.54%	19.22%	17.85%	17.43%	18.40%	25.59%	23.77%	23.22%	23.33%	22.97%	23.17%	23.99%	25.76%	31.57%	30.88%	30.50%	15.29%
Yemen	#N/A	#N/A	#N/A	#N/A	24.83%	22.54%	25.20%	25.10%	21.19%	20.09%	22.77%	17.10%	18.29%	17.07%	17.19%	17.15%	17.36%	17.51%	17.03%	17.19%	18.26%	21.88%	23.24%	22.45%	22.34%	26.11%
Zambia	4.35%	4.38%	5.35%	5.23%	5.11%	4.65%	6.60%	5.73%	5.25%	5.37%	5.44%	5.03%	7.05%	4.74%	4.60%	4.44%	5.07%	5.71%	3.84%	3.73%	4.98%	2.70%	3.13%	3.65%	3.42%	2.43%
Zimbabwe	2.51%	#N/A	2.61%	3.19%	2.12%	2.72%	8.57%	6.03%	#N/A	#N/A	3.17%	2.26%	2.32%	3.46%	3.66%	5.07%	5.77%	7.38%	11.32%	6.78%	23.10%	11.22%	15.55%	20.08%	21.56%	20.83%
World Total	7.10%	7.01%	6.94%	6.89%	6.99%	7.29%	7.41%	7.26%	8.44%	8.73%	8.44%	7.97%	7.69%	7.71%	7.70%	7.39%	7.36%	7.83%	8.11%	8.13%	8.12%	8.63%	9.40%	9.23%	9.52%	8.48%

Bibliography

Aghion, P., Howitt, P., Brant-Collett, M. & García-Peñalosa, C. (1998). *Endogenous Growth Theory*. MIT Press.

Ajanovic, A. (2011). Biofuels versus Food Production: Does Biofuels Production Increase Food Prices? *Energy*, 36(4): 2070-076.

Anderson, K. & Masters, W. A. (2009) *Distortions to Agricultural Incentives in Africa*. The World Bank.

Anderson, K. & Swinnen, J. (2008) *Distortions to Agricultural Incentives in Europe's Transition Economies*. The World Bank.

Bale, M. D. & Lutz, E. (1981). Price Distortions in Agriculture and Their Effects: An International Comparison. *American Journal of Agricultural Economics*, 63(1).

Bongaarts, J. (2009). Human Population Growth and the Demographic Transition. *Philosophical Transactions of the Royal Society B: Biol. Sci*. 364:2985–2990.

Boserup, E. (1981). *Population and Technological Change*. University of Chicago Press.

Brown, J. H., Burnside, W. R., Davidson, A. D., Delong, J. P., Dunn, W. C., Hamilton, M. J., Mercado-Silva, N., Nekola, J. C., Okie, J. G., Woodruff, W. H. & Zuo. W. (2011). Energetic Limits to Economic Growth. *BioScience*, 61(1): 19-26.

Brown, J. H., Burger, J. R., Burnside, W. R., Chang, M., Davidson, A. D., Fristoe, T. S., Hamilton, M. J., Hammond, S. T., Kodric-Brown, A., Mercado-Silva, N., Nekola, J. C. & Okie, J. G. (2013). Macroecology Meets Macroeconomics: Resource Scarcity and Global Sustainability. *Ecological Engineering*.

Burch, D. & Lawrence, G. (2005). Supermarket Own Brands, Supply Chains and the Transformation of the Argi-food System. *International Journal of Sociology of Agriculture and Food*. 13(1).

Cleveland, C. J. (1992). Energy Quality and Energy Surplus in the Extraction of Fossil Fuels in the US. *Ecological Economics*, 6(2): 139-162.

Cleveland, C. J. (2013). Net energy analysis. *Encyclopedia of Earth*.

Evenson, R. E. (2003). Assessing the Impact of the Green Revolution, 1960 to 2000. *Science*, 300(5620): 758-762.

FAO. (2011). *The State of Food Insecurity in the World 2011*. Food and Agriculture Organization of the United Nations.

FAO (2012). *Irrigation in Central Asia in Figures – AQUASTAT Survey – 2012*. Food and Agriculture Organization of the United Nations.

Heinberg, R. (2011). *The End of Growth: Adapting to Our New Economic Reality*. New Society Publishers.

Hinrichs, C. C. (2000). Embeddedness and local food systems: notes on two types of direct agricultural market. *Journal of Rural Studies*. 16(3): 295-303.

Howitt, P. (1999). Steady Endogenous Growth with Population and R & D Inputs Growing. *Journal of Political Economy*, 107(4): 715-730.

Ingold, T., Riches, D. & Woodburn, J. (1988). *Hunters and Gatherers*. Berg Publishing.

Johnson, G. D. (1975). World Agriculture, Commodity Policy, and Price Variability. *American Journal of Agricultural Economics,* 57(5).

Johnston, P. & Kilby, B. F. (1975). *Agriculture and Structural Transformation: Economic Strategies in Late-Developing Countries*. Oxford University Press.

King, C. W. (2010). Energy Intensity Ratios As Net Energy Measures of United States Energy Production and Expenditures. *Environmental Research Letters*, 5(4).

King, C. W. & Hall, C. A. S., (2011). Relating Financial and Energy Return on Investment. *Sustainability*, 3: 1810-1832.

King, C. W. (2014). On Relating US and UK Energy Expenditures (Net Energy), Debt, and Interest Rates. 37th Annual IAEE Conference, 2014.

Kummel, R. (2011). *The Second Law of Economics*. Springer.

Lee, R. B. & DeVore, I., (1968). Problems in the Study of Hunters and Gatherers. *Man the Hunter*. Aldine Publishing.

Macours, K. & Swinnen, J. F. M. (2002). Patterns of Agrarian Transition. *Economic Development and Cultural Change*. 50(2): 365-394.

Malthus, T. (1798). *An Essay on the Principle of Population*. 1st ed. Online at the Library of Economics and Liberty, http://www.econlib.org/library/Malthus/malPop.html

Maxwell, J. P. (2013). *Energy Intensity Ratios as Net Energy Measures for Selected Countries 1978-2010*. University of Texas at Austin.

Mitchell, D. (2008). *A Note on Rising Food Prices*. The World Bank.

Moses, M. E., & Brown, J. H. (2003). Allometry of Human Fertility and Energy Use. *Ecology Letters*, 6(4): 295-300.

Mosher, A. T. (2008). The Development Problems of Subsistence Famers: A Preliminary Review. *Subsistence Agriculture & Economic Development*. Transaction Publishers.

Nekola, J. C., Allen, C. D., Brown J. H., Burger, J. R., Davidson, A. D., Fristoe, T. S., Hamilton, M. J., Hammond, S. T., Kodric-Brown, A., Mercado-Silva, N. & Okie, J. G. (2013). The Malthusian–Darwinian Dynamic and the Trajectory of Civilization. *Trends in Ecology and Evolution*, 28(3): 127-130.

Parfitt, J., Barthel, M. & Macnaughton, S. (2010). Food Waste within Food Supply Chains: Quantification and Potential for Change to 2050. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 365(1554): 3065-3081.

Pedersen, B., Knudsen, K. E. B. & Eggum, B. 0. (1989). Nutritive Value of Cereal Products with Emphasis on the Effect of Milling. *World Review of Nutrition and Dietetics*, 60: 1-91.

Pfeiffer, J. E., (1977). *The Emergence of Society: A Prehistory of the Establishment*. McGraw Hill.

Price, D. (1995). Energy and Human Evolution. *Population and Environment*, 16(4): 301-319.

Rosegrant, M. W. (2001). *2020 Global Food Outlook: Trends, Alternatives, and Choices*. International Food Policy Research Institute.

Rosegrant, M. W. (2008). *Biofuels and Grain Prices: Impact and Policy Responses*. International Food Policy Research Institute.

Smil, V. (1994). *Energy in World History*. Westview Press.

Stark, B. L. (1986). Origins of Food Production in the New World. *American Archaeology Past and Future*. Smithsonian Institute Press.

Stewart, F. (2006). War and Underdevelopment: Can Economic Analysis Help Reduce the Costs?, 5(4): 357-380.

Tainter, J. (1988). *The Collapse of Complex Societies*. Cambridge University Press.

Tainter, J. A., Allen, T. F., Little, A. & Hoekstra, T. W. (2003). Resource Transitions and Energy Gain: Contexts of Organizations. *Conservation Ecology*, 7.

Tainter, J. A. & Patzek, T. W. (2012). *Drilling Down: The Gulf Oil Debacle and Our Energy Dilemma*, Springer.

Trostle, R. (2008). *Global Agriculture Supply and Demand: Factors Contributing to the Recent Increase in Food Commodity Prices*. ERS USDA.

Tsao, J., Lewis, N. & Crabtree, G. (2006). *Solar FAQs*. Sandia National Laboratories.

Watts, D. C. H., Ilbery, B. & Maye, D. (2005). Making Reconnections in Agro-food Geography: Alternative Systems of Food Provision. *Progress in Human Geography*. 29(1): 22-40.

Weatherell, C., Tregear, A. & Allinson, J. (2003). In Search of the Concerned Consumer: UK Public Perceptions of Food, Farming and Buying Local. *Journal of Rural Studies*. 19(2): 233-244.

West, G. B., Brown, J. H. & Enquist, B. J. (1997). A General Model for the Origin of Allometric Scaling Laws in Biology. *Science*, 4(276): 122-126.

Wharton, C. R. (2008). Subsistence Agriculture: Concepts and Scope. *Subsistence Agriculture & Economic Development*. Transaction Publishers.

Wilkes, G. H. and Wilkes, S. (1972). The Green Revolution. *Environment: Science and Policy for Sustainable Development*, 14(8): 32-39.

World Bank. (2008). Agriculture for Development. *World Development Report 2008*. The World Bank.

Wrigley, T. (2011). *Opening Pandora's Box: A new look at the industrial revolution*. VOXEU.

Zohari, D. (1986). The Origin and Early Spread of Agriculture in the Old World. *The Origin and Domestication of Cultivated Plants*. Elsevier.