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Animal welfare around the world: examining the role the economy has on animal welfare

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Every person has a different perspective from which he or she views animals. For some, an animal is almost human-like; for others, animals are a means to an end; for most people, their beliefs fall somewhere between these two extremes. Animals may be viewed as pets by some and commodities by others. This concept is not a new phenomenon. Centuries ago, societies such as the Native Americans and Hindus included in their religious practices methods for slaughtering animals humanely. This idea of treating animals with a certain precedent and creating standards that upheld their well-being developed into the concept that today is known as animal welfare. The implementation of animal welfare laws varies from country to country and is often driven in part by that country's economy. The growth rate of the economy, the equality of income, and consumer demands all play a part in determining the various levels of animal welfare regulation implemented by a given country. These three factors influence animal welfare in each country and create the spectrum of standards that are seen today.

Before the factors that effect animal welfare can be discussed, one must first have a clear understanding of the definition of "animal welfare". Animal welfare simply defined is the well-being of the animal, meaning animal welfare deals with the quality of the animal's life. However, the World Organization for Animal Health (OIE) defines animal welfare as how an animal is coping with the conditions in which it lives. Explaining that an

animal is in a good state of welfare if (as indicated by scientific evidence) it is healthy, comfortable, well nourished, safe, able to express innate behavior, and if it is not suffering from unpleasant conditions such as pain, fear, and distress. Good animal welfare requires disease prevention, veterinary treatment, appropriate shelter, management, nutrition, humane handling, and humane slaughter (OIE, 2013). Taking it one step further the United Kingdom Farm Animal Welfare Council defines animal welfare as five ideal states as opposed to animal welfare standards. These five states are freedom from hunger and thirst, freedom from discomfort, freedom from pain, injury or disease, freedom to express normal behavior and freedom from fear and distress (FAWC, 2013). How these concepts are implemented in each country, however, depends on many factors, including the economic conditions of that country.

The idea that a country's level of economic development and its laws relating to animal welfare go hand in hand is not a new one. In fact, many hypotheses and theories attempt to explain this phenomenon. One major theory is the Kuznets curve. The Kuznets curve is used in environmental discussions and proposes that, as the per capita income of a country increases, its negative environmental impact initially increase as it quickly grows. But, as a certain threshold is reached, the negative environmental impact begins to decline (Morris, 2013). Thus, an inverted U-shaped relationship between economic development and environmental impact develops (Figure 1). This same idea has been applied to attitudes regarding animal welfare. If such a curve existed, it would imply that future economic growth would result in animal welfare improvement (Frank, 2008). At first this curve seems to be supported by the fact that a rapid economic growth results in declining standards of animal welfare (Figure 2). If the number of animal welfare

organizations is used as a numerical value for estimating a country's animal welfare standards, Figure 2 suggests that as a country's growth rate increases the number of animal welfare organizations quickly decreases. However, once the economy reaches a threshold gross domestic product (GDP) of about 350 billion dollars, the economic growth rate is no longer the determining factor in animal welfare (Figure 3). Rather other factors, such as income equality and consumer demands, begin to affect the levels of animal welfare (Morris, 2013). This can be seen by the fact that income inequality begins to have a higher correlation with animal welfare as the GDP of a country surpasses the threshold (Figure 4 and 5). Both the distribution of income and the overall attitude of the consumers begin to interact with the country's economic growth once the overall stability(GDP) of a country has reached a level in which the country is no longer fighting for survival. By examining these trends and discussing the potential reasons behind them, one can begin to see how animal welfare standards may be affected by a combination of economic growth, income equality, and consumer demands.

The influence of rapid economic growth on animal welfare standards can be seen when China's recent history is examined. China is a large, rapidly developing country and has one of the fastest growing economies in the world (Nielsen and Zhao, 2012). In fact, China produces 15% of the world's total goods and services and is the world's largest pig and second largest chicken producer (Nielsen and Zhao, 2012). China produces 47% of the world's pork and 17% of the world's poultry (FAO, 2013). Animal welfare is an issue that is just beginning to raise concern in China. When surveys of farms throughout China were conducted in 2006 it was found there was "a nationwide enthusiasm for Western farming practices such as gestation crates, battery cages, ear-clipping, beak-trimming, early

weaning (for calves), castration, tail-docking (for pigs), and forced feeding (ducks and geese for weight gains and foie-gras production)." Many countries in Europe are beginning to do away with these types of practices (Li, 2012). With the increased use of intensive management systems in China, the country has been slow to implement more stringent animal welfare legislation. For example, although China has the western technology to implement proper and humane animal welfare standards, there is little education done to ensure proper use of such equipment (Li, 2006). In fact, the basic practice of humane slaughter by stunning the animal unconscious has yet to become a requirement in facilities throughout the country (Nielsen and Zhao, 2012).

In rapidly developing countries, animal welfare standards are often lower on the list of concerns for producers than in more fully developed nations (Nielsen and Zhao, 2012). In countries where yield, disease control, and adequate access to feed are a more pressing concern and require greater attention, concern for an animal's wellbeing may be understandably overlooked. According to Dr. Peter Li, an expert in animal welfare in China,

> "Since 1978, China has seen a nation-wide drive for prosperity. But there remains a collective fear of hunger in the minds of people over the age of 50 in China. Deng Xiaoping, China's reform architect, once remarked that people would revolt if the food security situation could not be improved. So Chinese reforms, initially, were intended to improve the food supply to the 900 million Chinese people, while ethics, morality, social responsibility, environmental impact, labor rights, etc., were often ignored. Chinese authorities are not motivated to tackle the problem of animal cruelty for fear that economic growth would be slowed down." (Li, 2012).

The conflict between animal welfare and economic factors is often due to the fact that the practices required to maximize profits tend to conflict with those required to maximize animal welfare. This relationship is seen clearly in Figure 6 (McInerney, 2004).

This diagram shows a conceptual model of animal production. This illustrates that increased productivity can sometimes be associated with decreased animal welfare. The animal agricultural industries in most countries lie somewhere between points B and D, with D being low animal welfare standards and B being low production (McInerney, 2004). Generally, a society's goal is to move towards point C, where both production and animal welfare standards are at relatively high levels.

This is easiest to accomplish with a large population of wealthy consumers who, having found their basic needs met, are more likely to express concern for environmental and animal welfare issues (Frank, 2008). This is a similar concept to that proposed by the Kuznets curve; however, the correlation between a country's economic prosperity and higher standards for animal welfare is not as strong as these theories would suggest. For instance, the United States has a Gross Domestic Product (GDP) of around 15 trillion dollars where as the EU has a GDP of around 14 trillion dollars, but EU animal welfare standards are generally considered to be much more stringent than those of the United States (FAO, 2013). For example, over the past ten years the EU has focused on creating laws and regulations that are tailored to individual species. Such laws include upgrading minimum standards, promoting animal welfare related research, introducing standardized animal welfare indicators, and ensuring people are more involved and informed on animal welfare issues (EUROPA, 2013). In comparison, the US has only amended their animal welfare act twice over the past ten years, only adding a small number of regulations, most of which involve companion animals or animals used in research (Adams and Larson, 2012). This suggests that factors other than economic prosperity and growth also influence animal welfare standards. For example, in the U.S. a country with one of the highest

GDPs, an increase in household income has been associated with increased meat consumption (Figure 7). With meat consumption being one of the largest contributors to animal welfare in the sense that meat consumption is a direct representative of animal product consumption, the United States breaks the model of the animal welfare economics curve (Morris, 2013). In countries with high incomes it would be expected that their meat consumption would decrease due to awareness raised about animal welfare that would allow the society to question the high levels of animal products they are consuming (Morris, 2013). The idea behind this being that with a lower volume of animals needed, the animal welfare will begin to improve due to less constraints and demands on the industry (Frank, 2008). However, when examining the data there is no real correlation between economic income and meat consumption (Figure 8). But when compared to the income distribution the amount of meat consumed increased significantly as the income inequality increased (Figure 9).

This suggests that there is another major factor in the animal welfare standards of a country; the country's level of income equality. Income equality is the distribution of wealth amongst the people (CIA, 2013). It is measured by using the Gini coefficient. The Gini coefficient is a ratio of the areas on the Lorenz curve (an economic curve which demonstrates the distribution of wealth) (CIA, 2013). A Gini coefficient of 0 means that the country is in prefect equality, whereas 100 means a country's is in complete inequality. The United States has a larger inequality coefficient (45) than the countries of the EU (30.7) (CIA, 2013). The data in Figures 8 and 9 and Table 1 shows that, outside of the U.S., countries with higher income equality tend to consume less meat and to have stricter legislation on animal welfare (Morris, 2013). There are several reasons that income

equality may play a role in animal welfare. For example, a higher level of income equality means that there may be a larger population of people who have enough of their basic needs met to be able to focus their energies on animal welfare issues. Additionally, higher income equality could mean that a higher percentage of people have enough disposable income to base their purchases on a company's treatment of animals instead of price. For instance, in a country with a large divide between the rich and the poor, the rich may be demanding and supporting higher animal welfare standards for their products, but there is still a large percentage of the consumers that can only afford to pay the cheaper prices of the products produced by companies with lower animal welfare standards. This large consumer base provides producers with less motivation to produce the more expensive products when they can easily sell the less costly products.

Consumer demand may be the primary driving force behind changes and improvements in animal welfare standards. Organizations, friends, and family who actively promote heightened animal welfare standards create a market in which animal welfare becomes a part of the competitive process (Inglenbleek et al, 2013). If the consumer deems animal welfare as an issue that they are willing to pay to support, then animal welfare becomes an issue that producers begin to improve on. For example, Freedom Food in the United Kingdom is a brand that promotes itself as being above the legal standards for animal welfare. Along with Freedom Food, other supermarkets have begun to adopt similar standards. These brands then put pressure on the industry to improve animal welfare due to increased competition between companies to differentiate themselves (Inglenbleek et al, 2013). Producers struggle to find a balance between improving animal

welfare standards demanded by some consumers and keeping production costs competitive in the global economy.

An example of consumer demand for increased animal welfare standards conflicting with economic concerns is illustrated by the issue of battery cage use in egg production. The EU has an estimated 350 million hens in use for the production of eggs (EEPA, 2013). In 1999 the EU passed laws that required the phasing out of battery cage systems in egg laying production by 2012 (Wilkens, 2006). Cage space required per animal was increased to750 cm^2; 310cm^2 is required in Russia, China, Japan and Brazil (Grethe, 2006). These changes in production caused egg production prices to increase by 8 to 30 percent (Mitchell, 2001). The ban on battery cages raised the price of eggs to consumers as well (Mitchell, 2001). This increase in production costs, along with requirements from the World Trade Organization to remove international trade tariffs, may cause an increase in cheap eggs being imported from countries such as China and Brazil (Wilkins, 2006). While some consumers are willing to pay such costs because of animal welfare concerns, not all are willing or able to do so.

Many of these issues could be minimized if all countries worldwide shared the same or similar animal welfare standards. However, economic and cultural differences result in varying levels of regulation regarding animal welfare. For rapidly developing nations, animal welfare is a low priority compared to more pressing matters. As an economy develops, animal welfare standards begin to be explored until ultimately it is the consumers and their willingness to push for and pay for improved animal welfare that create the standards of each individual country. Although countries with a more highly developed economy should theoretically result in higher animal welfare standards, there

are additional factors, such as income equality and consumer demands, that ultimately determine the standards of animal welfare in individual countries.

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Figure 1

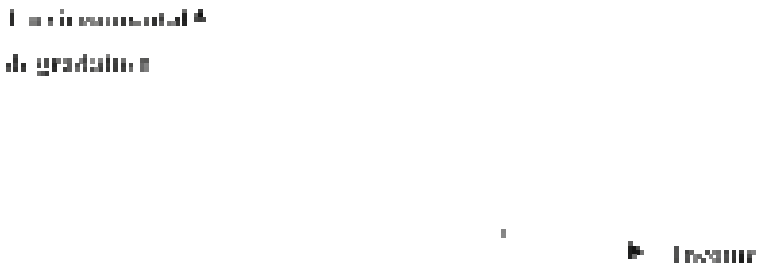

FIGURE 1. Environmental Kuznets Curve (Dinda, 2004)

Figure 2

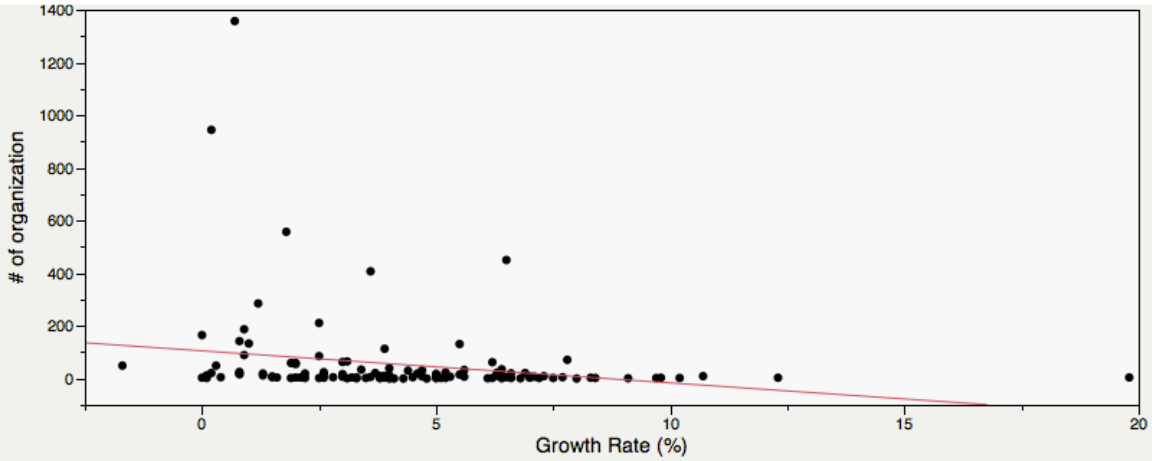

FIGURE 2. Number of animal welfare organizations within a country by the economic growth rate (%). Line of fit shown for significant correlation of 0.032. (WAN, 2013; WorldBank, 2013)

Figure 3

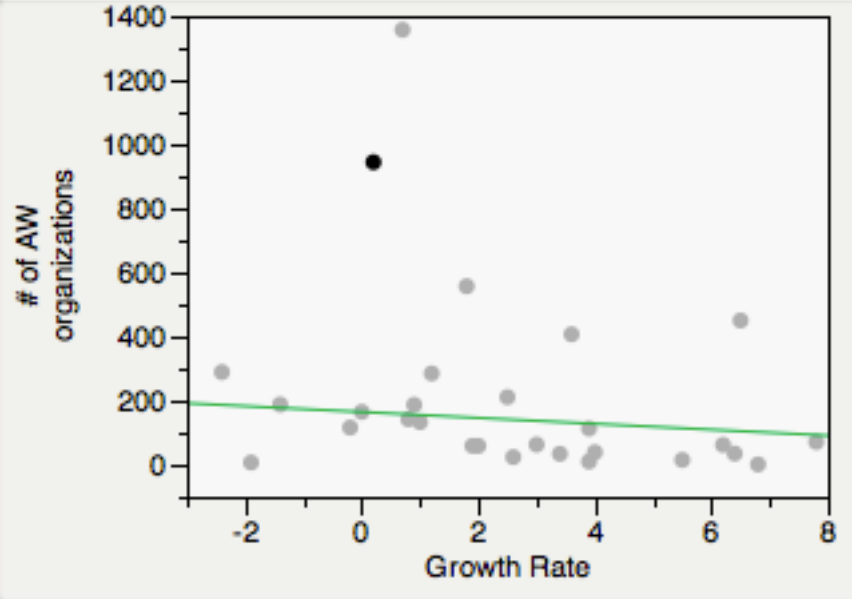

FIGURE 3. Number of animal welfare organizations by the economic growth rate (%). Showing only the top 20% GDP countries. Line of fit shown for no significant correlation of 0.02. (WAN, 2013; WorldBank, 2013)

Figure 4

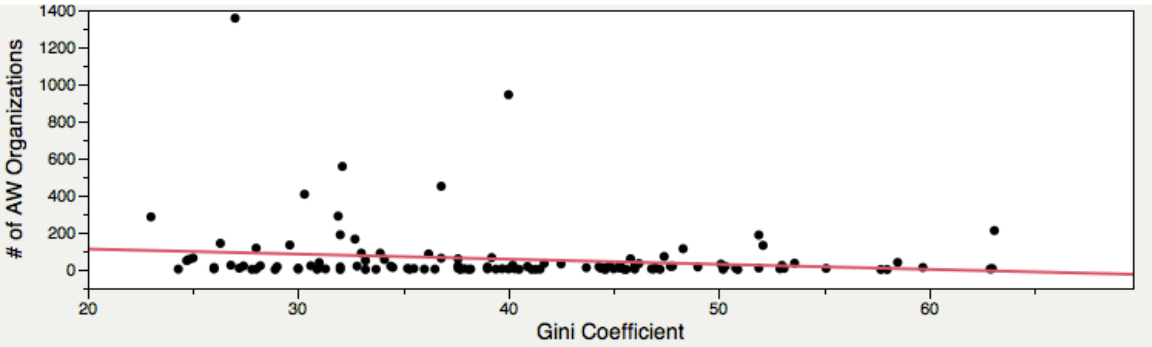

FIGURE 4. Number of animal welfare organizations by Gini coefficient. Line of fit shown for no significant correlation of 0.02. (WAN, 2013; CIA, 2013)

Figure 5

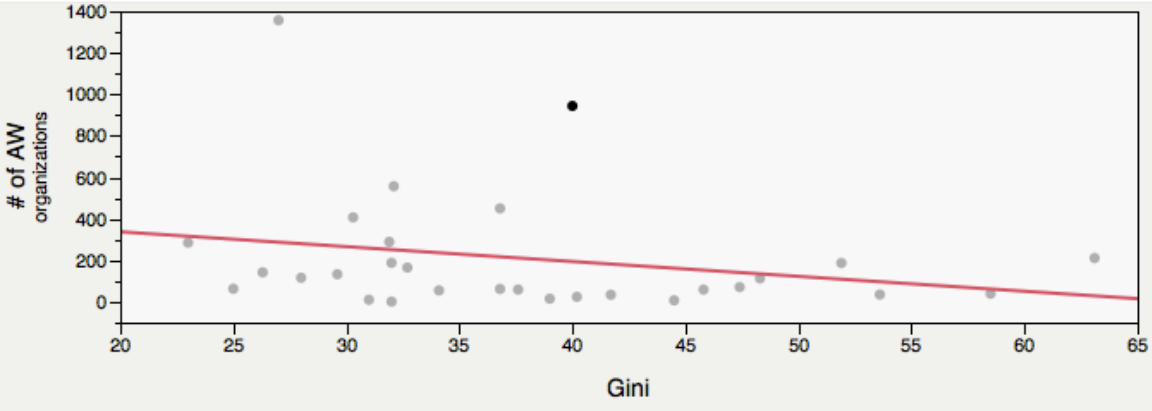

FIGURE 5. Number of animal welfare organizations by Gini coefficient. Showing only the top 20% GDP countries. Line of fit shown for significant correlation of 0.06. (WAN, 2013; CIA, 2013)

Figure 6

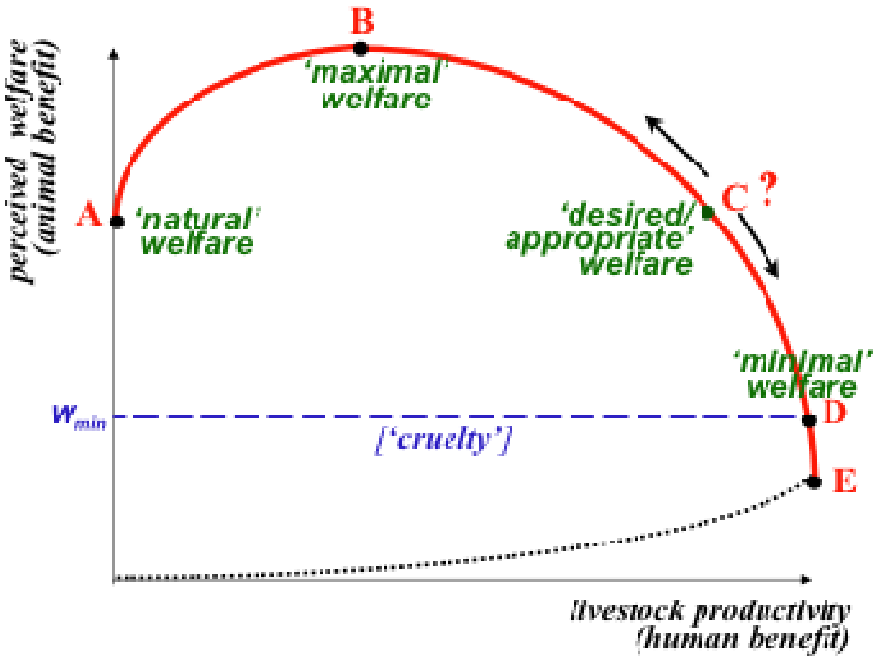

FIGURE 6. Conflicts between animal welfare and productivity (McInerney, 2004).

Figure 7

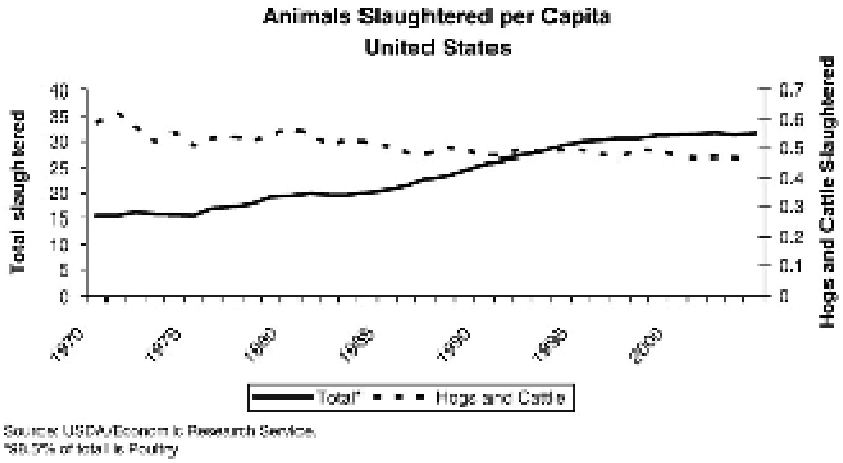

FIGURE 7. Animals Slaughtered per capita in the United States over time. (Frank, 2008).

Figure 8

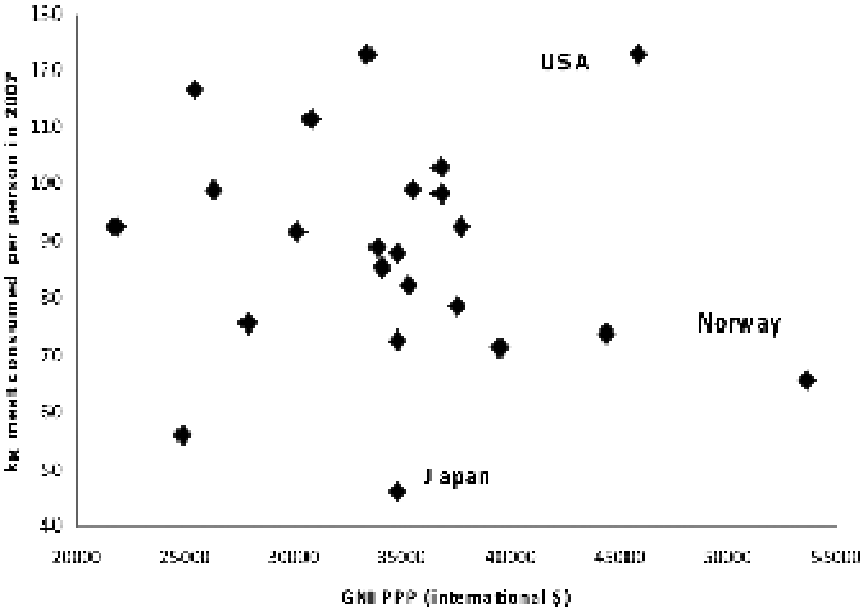

FIGURE 8. Total mass of meat consumed per person in 2007, with Gross National Income, for the highest income countries with a population over 3 million. (Morris, 2013).

Figure 9

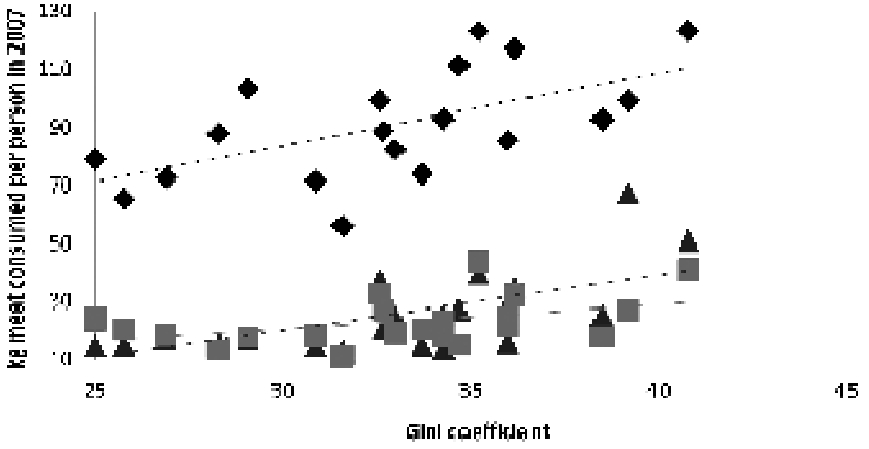

FIGURE 9. Total mass of meat (diamonds) consumed per person in 2007 by Gini for the 21 highest income countries with a population over 3 million. Lines of best fit are shown for significant correlations. (Morris, 2013).

TABLE

Rank Correlations Between Values of Animal Product Consumption and Income and Income Inequality (Gini Coefficient) for the Wealthiest Countries in 2007

Food	Mean Consumption per Person	Correlation with Income		Correlation with Income Gini Coefficient	
		Rank Order Coefficient	Significance Level	Coefficient	Significance Level
Total meat (kg per year)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total seafood (kg per year)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total eggs (kg per year)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total poultry meat (kg per year)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total milk (excl. butter) (liters per year)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total eggs (no per year)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total fish and seafood (no per year)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total calories (kcal/day)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total animal calories	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total vegetable calories (kcal/day)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Proportion of vegetable calories	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

(Morris, 2013)