DISCUSSION PAPER

Measuring Impact of Competition Reforms in Developing Countries

A Survey of Possible Approaches and Selection of Countries and Sectors for the CREW Project

SUBMITTED TO
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Introduction

The project entitled, ***Competition Reforms in Key Markets for Enhancing Social and Economic Welfare in Developing Countries*** **(CREW project)** will be implemented by CUTS International in collaboration with Nathan India over the course of three years starting in 2013. The project is supported by the Department for International Development (DFID), UK, BMZ (Germany) and facilitated by GIZ (Germany). The aim of the project is to develop an approach which can be applied in developing countries to assess benefits of competition reforms on consumers and producers in specific product markets.

The CREW project will be implemented in four countries and in two (common) sectors across these countries. It will be conducted in three phases. The first is a preliminary diagnostic phase, which includes desk literature review of methodologies used to analyse the impact of competition reform. This phase also includes selection of four countries and two broad sectors in which CREW will focus on. The second phase will be the design phase, in which a methodology will be developed in detail for analysis in two specific product markets within the broad sectors chosen in Phase I. The final phase will be the validation phase, in which the methodology will be applied and adjusted to finalise a framework for analysis of impact of competition reform in developing countries.

This paper is part of Phase I of the CREW project. It contains a broad review of various methods that have been used for measuring impact of policy reform processes across the world, and provides a suggested approach for analysis for the CREW project. It also lays out a method for selection of four CREW countries and two sectors.

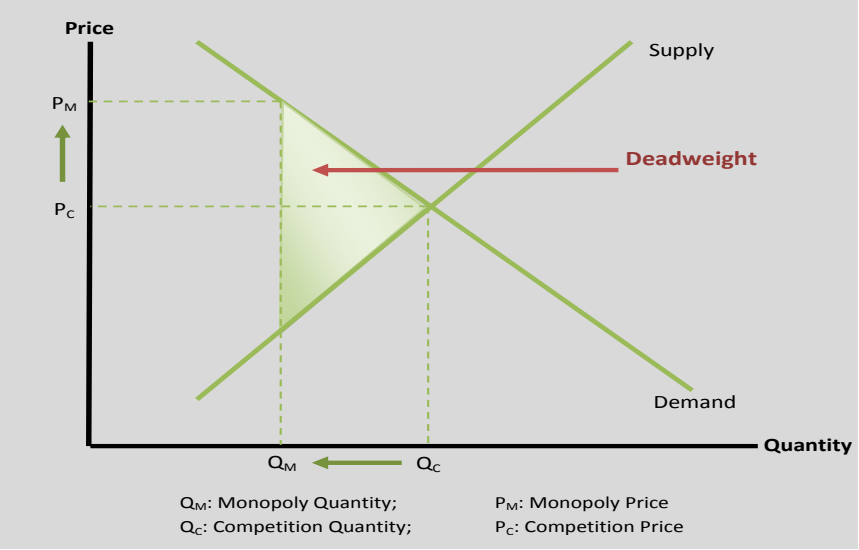
This discussion paper will be presented by Nathan India at the CREW Project Inception Meeting being held in Jaipur, India on *March 13-14, 2013*. The final selection of countries and sectors is expected to be completed either in the run-up to the meeting or at the meeting itself.

Economic Framework

Economic theory establishes that competition is beneficial for the functioning of an economy. For consumers, increased competition implies more choice, lower prices, higher consumer welfare, improved quality, and increased access to products. Through competitive processes, producers benefit from lower input prices resulting in lower costs and higher profits. The resulting price-profit signals lead to greater mobility of resources from lower to higher valued uses and efficient allocation of resources. Newer firms and increased competition provide incentives for decreasing costs and enhancing innovation (dynamic efficiency). These benefits are measured by estimating consumer surplus, producer surplus, and the resulting total welfare.

That monopoly power and anticompetitive practices reduce welfare and creates deadweight loss is well established by economic theory (as illustrated in Figure 1) and from empirical evidence since Harberger (1954) first brought it into light. Despite this conventional wisdom on the impact of competition, there is not a strong consensus on whether competition *policy*[1] benefits the economy – particularly in developing economies which may not have the supporting legal, judicial, or infrastructure systems.

Figure 1: Deadweight Loss Due to Imperfect Competition



The wave of competition law enactments and changes in competition policy in developing countries during the 1990s has sparked increasing interest in establishing factually whether, if at all, competition reform increases economic welfare. Indeed, competition agencies in both developed and developing economies are finding themselves accountable to assess the benefits of their activities relative to their costs.[2] A large volume of academic research has been devoted to assessing the benefits of competition reform. International organisations and

[1] We use the terms policy, law, regulation, and reform interchangeably in this paper. Competition policy refers to overarching policies intended to prevent collusion among firms and to prevent individual firms from having excessive market power while competition law is a subset of competition policy articulating the details of the policy. Competition regulation is a further stipulation of laws used for implementation. The term "reform" refers to changes or amendments to either policy, law, or regulation.

[2] For instance, the Office of Fair Trading in the UK estimates the positive impact of its activities on direct benefits to consumers and compares these numbers to the budget of the Competition Authority. The Dutch Competition Authority evaluates its enforcement and its effect on the country's macroeconomic variables, such as growth and employment.

aid agencies have mirrored the effort in developing analytical frameworks to measure the impact of competition reform.

This paper surveys existing studies and guidelines on methodologies for analysing the effectiveness and impact of regulatory reform, in general, and competition law, in particular. It is by no means an exhaustive catalog of current literature; rather it intends to provide a variety of examples of appropriate techniques. The objective is to serve as a scoping study or discussion paper that will inform the design of an approach to be applied in developing countries to assess the benefits of competition reform on consumers and producers in specific markets.

Evaluation Methods

Literature on evaluation of competition reform, or any other reform for that matter, emphasises the importance of clearly defining the parameters of evaluation. There are at least three preliminary dimensions that must be clearly stipulated: (a) objective of assessment; (b) object of evaluation; and (c) scope of evaluation.

Any evaluation approach will depend on the ultimate objective of the assessment. If the evaluation is intended as a normative assessment (what should be), the approach utilised should be able to inform assessors of the desirability of a particular policy. On the other hand, a positive assessment (what is) simply investigates the consequences of a given policy. The two different objectives imply different approaches towards the evaluation process. It is the latter positive assessment of competition policy reform that is of interest in the context of this paper. A thorough assessment of the impact of existing competition policies will guide our recommendations on whether or not pro-competition policies need to be encouraged and deepened.

When it comes to measuring the benefits of competition reform,[3] studies vary in their definition of the object, from the broadest sense of competition policy (e.g. enabling government policies that promote competition in markets, such as a national competition policy) to a competition law, a competition authority, specific enforcement activities or processes of a competition authority (such as merger control or cartel enforcement), etc. In developing an approach for assessment, it is important to be clear what it is that we are measuring the impact of. We define competition reform in its broadest sense, encompassing three elements:[4]

1. *Enabling government policies that promote competition in markets.* These policies may be broad and sweeping like the 1890 Sherman Antitrust Act[5] of the US, or policies relating to particular anticompetitive practices, such as mergers (vertical or horizontal), cartel formation, etc.
2. *Appropriate regulatory framework and institutions for promoting competition in sectors.* These sector-specific regulations may be introduced to deregulate and privatise traditionally state-controlled or state-owned enterprises (SoE), such as the liberalisation of the airline industry in Mexico beginning in the early 1990s (Ros 2011). Sector specific reform may also be a result of the government identifying prevalent anticompetitive practices in a specific sector, such as market reform relating to the commodity market in several African countries (Akiama et al 2004).

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[3] We use the term "benefits" broadly in this paper. To be sure, benefits from competition reforms can be varied. For producers, it might mean lower costs, increased efficiency, availability of innovative technologies, easier entry and exit from market. For consumers, it could mean decreased costs, increased access, more choice, improved quality and service.

[4] As defined in the Terms of Reference of the *CREW Discussions Paper* developed by CUTS International.

[5] The act was amended by the Clayton Act in 1914, and its interpretation modernised and solidified by the Judicial branch (www.law.cornell.edu/wex/sherman_antitrust_act)

3. *Effective competition enforcement institutions to curb anti-competitive practices.* These may include establishing new or restructuring older regulatory institutions to implement competition policies discussed above.

The scope of evaluation varies depending on the extent to which a policy consequence is being examined. For instance, while some studies examine the impact of regulatory reform on a particular sector or sectors, others assess impact economy-wide. Similarly, evaluation methodologies as well as measurement indicators vary for economy-wide analysis *vs* a cross-country analysis.

In this section, several different methodologies in current literature that are used to measure benefits of reform are summarised. The primary focus is on literature that deals with measuring benefit of competition policy reform, although some instances of other kinds of reform in cases have also been looked at where they encompass competition policy *de facto*. Some of the methods described below are not mutually exclusive. Indeed, several studies have employed one or more of these approaches simultaneously. Methodologies for evaluating the benefits of reform are broadly categorised in the following way for organisational purposes.

1. Time series variation – Comparing outcomes before and after reform
2. Spatial variation – Comparing outcomes between regulated and unregulated markets
3. Structural estimation/ simulation models – Shocking an economic model with reform variables to investigate the effect on other structural variables
4. Cost-benefit analyses – Comparing monetised costs and benefits of reform
5. Surveys – Targeting agents and beneficiaries specific to the particular case, industry or market under investigation

The first three approaches deal with economic impact analysis, where a scenario with regulation is compared what might have happened without the regulatory constraint (counterfactual). Cost-benefit analyses are commonly used to assess *a priori* the net benefits of proposed reform by monetising all relevant benefits and costs. Although time and resource intensive, surveys specifically targeted on affected entities can be purpose-made for the particular case under investigation and may allow supplemental data for any of the methods mentioned above.

In the detailed discussion of each category that follows, the concept behind the empirical strategy is explained, a sample of literature that has employed this methodology has been provided, and finally a brief critical assessment of the pros and cons of the method has also been presented. In describing examples of studies, concentration is on breadth rather than detail. This discussion paper provides full spectrum of studies, and describes the data, methodology and results with brevity.[6]

TIME-SERIES VARIATION

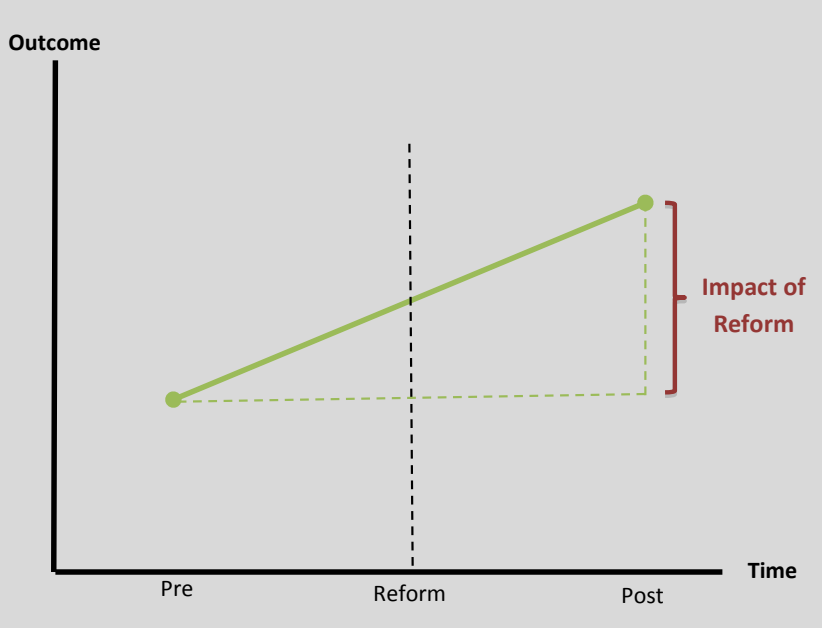
The underlying idea in evaluations applying this approach is to compare two samples of data before and after a regulatory reform is introduced. The assumption is that, all else being

[6] A more detailed description of methodology of each study and a critical discussion of its strengths and weakness would be useful to some readers. That level of detail, however, is outside the scope of this background paper. Once a methodology for this project is defined, a technically critical review of pertinent literature will be necessary. A closer look at issues such as variable selection, methodological limitations, econometric basis, data use and limitations, and interpretation/ presentation of results will be useful.

equal, changes observed with this before and after approach are attributable to the regulation introduced. The time period studied must include period(s) when the regulation is introduced. Data for the period after regulation may be realised in reality (*ex-post*) or may be estimated based on what is expected to be realised (*ex-ante*). In the former case, ideally the data spans a long enough period to allow for transitional changes to be fully realised. In this approach (as with the spatial variation discussed below), a dependent variable is defined (e.g. price, rate of technical change, etc.) and modeled as a function of exogenous economic variables. A dummy variable[7] is assigned for whether a data point is from the "regulated" or "unregulated" pool. The sign and coefficient on the dummy corresponds to the impact and size of the regulation.

Figure 2 illustrates the basic principle behind the use of time-series variation to evaluate impact of reform. Outcome variables are measured before and after reform, and the subsequent change is attributed to reform.

Figure 2: Measuring Impact Using Time-Series Variation Pre-/Post- Reform



Examples

A number of studies have used this approach because of the relative ease of estimation, especially when evaluating competition policy reform in a single country and a single or a few sectors. For instance, a 2009 World Bank working paper (Kompas et al 2009) uses four different provincial datasets of rice output data to measure total factor productivity (TFP) and other production and efficiency parameters through time series data before and after a series of land and market reforms at the national level. Similarly, the decentralisation and reform of the Mexican Airline Industry and the Mexico City Airport forms the basis of another study by Organisation for Economic Cooperation and Development (OECD) and the Mexican Federal Competition Commission using time-series variation (Ros 2011). The study establishes an econometric model for airfare determinants using Ordinary Least Square and Instrumental (dummy) variable approach to estimate the net effect on consumers. The paper estimates the

[7] This variable is constructed such that it only takes two values - zero or one, depending on whether the data point is from the unregulated or regulated pool respectively. Economists have traditionally called such a variable a "dummy" variable.

net benefit to consumers through lowered prices (positive) and increased congestion (negative) from entry of low-cost airlines following reform.

Another World Bank report (Akiama et al 2004) compiles a series of qualitative discussion of various market reforms in the commodity market (e.g sugar, coffee, grains cotton) in several African countries, and its effect on price levels and volatility. The investigated policy reform includes the removal of commodity boards and liberalisation of the market away from monopolistic competition, and the subsequent change in the role of the government from marketer to regulator. The quantitative analysis consists of reporting simple changes in aggregate time series data on price, output and other factors during and after the reform years. The report also outlines qualitative changes in each country that resulted from market reforms.[8]

A similar procedure is employed by in a study (Jayne et al 1997) to assess the impact of reform in the maize market. It differs from the study above in its use of household surveys rather than just price indices before and after the maize market reform. This approach is more versatile in that distributional impact to the population and other consumer behaviour changes can also be estimated using such household surveys.[9] They estimate the impact on maize prices for consumers, and efficiency and market entry for producers, and find a decrease in prices for consumers, and more maize mills openings through informal markets.

Other researchers have used firm-level data and focused on the production of firms. A World Bank study (Amin forthcoming) uses firm level data before and after the opening up of the retail sector to competition. The study shows that market liberalisation improved efficiency (firm sales to employment ratio) by 87 percent. Another World Bank study (Shepotylo 2012) measure changes in TFP of manufacturing firms from liberalisation of services in Ukraine. A series of laws were passed from 2001-2007 in order to conform to rules set up by trading partners as part of Ukraine's bid to join the WTO. The study builds firm specific index of service utilisation by manufacturing firms, and finds that TFP increase of about four percent. In addition, authors find that smaller domestic firms appear to gain more from reform.

The outcome measured need not always relate to consumers and producers (i.e. welfare), but rather to non-competitive behaviour directly. In 1993, US Department of Justice (DoJ) instituted a leniency programme to its anti-cartel law related to the Sherman Act. The change in enforcement policy allowed early confessors leniency in prosecution. Miller (2009) builds a theoretical model for cartel behaviour and response to leniency. Through regression and direct estimation of data from US DoJ information reports over a 25-year period, the author finds that institution of this leniency policy resulted in 59 percent reduction in cartel formation rate, and a 62 percent increase in cartel detection rate. The consequent increase in consumer welfare due to price reduction was not measured, though it can reasonably be inferred.

Similarly, Duso et al (2010) analyse changes in European merger policy reform in 2004.[10] They consider over 300 merger decisions before and after reform (1990-2007), and evaluate the impact of merger and merger control on stock market prices. This method of using stock market prices to convey forward looking producer welfare changes (termed “Event Studies”) is a common assessment tool of merger decisions (Oliver 2012). The basic principle behind

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[8] Such as influence of government and local politicians

[9] Household survey allow us to observe changes at the individual level, and therefore permit analyses of shifts in benefit from one segment of the population to another. Such distributional impact analysis is not possible with aggregated data

[10] The aim of reforms was to bring merger decisions more in line with economic principles. Some important changes that resulted from the reform include the introduction of an efficiency defense clause, formation of the office of the chief economist, issuance of guidelines for horizontal mergers and replacement of the existing "dominance test" (DT) with the "significant impediment of effective competition test" (SIEC).

event studies is to use stock market valuation of target and acquiring firm before and after reform – an increase could imply increase market power and signal anticompetitive effects. The authors find that changes introduced by the 2004 EU merger policy reform only resulted in modest improvements in merger control decisions.

Pros/Cons

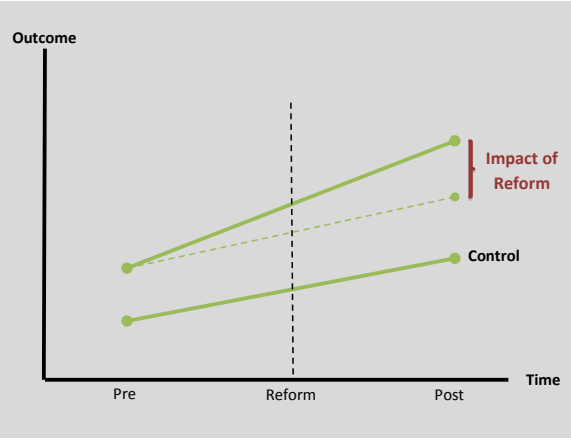
Using time series data before and after a reform to estimate the impact of competition policy reform is one of the simplest and expedient methods of analysis. Data availability (aggregate, or firm/household level) pre and post reform ensures that, as documented above, researchers can use simple difference, or control for more variables in a regression framework to analyse the impact of a reform. However, when analysed simplistically and without econometric rigor, the nature of this analysis could also raise possible sources of estimation errors. Carefully choosing data time periods is crucial.

For example, if the post reform data is too close to the reform itself, it is possible the full effect of the reform has not yet been reflected in the data. On the flip side, if the post-reform data point is too far off from the reform, it becomes difficult to establish that changes in outcome are solely from reform and not due to exogenous external shocks. A richer dataset that provides more information can also allow for control of various external and exogenous factors, and thus adds credence to claims of causality. In some cases though, the much weaker claim of correlation between reform and benefits becomes more prudent than a stronger claim of causation. In addition, if the nature of regulatory reform is drawn out and does not consist of a single point in time, the definition of periods before and after reform becomes problematic. Understanding the unique circumstances of the regulatory reform in question is crucial in order to correctly place the pre and post data points and correctly assess impact of reform.

SPATIAL VARIATION

Similar to the time-series approach, this method compares two sets of markets which are identical or similar in all respects, except for the regulatory constraint introduced in one. These pairs could be markets in different states, for instance, or customers impacted by a particular regulation and those that are not. Cross-sectional data requires both a defined variation in the sample groups, as well as control for relevant non-regulatory variations. As with the time-series variation, a dummy is assigned for the "regulated" and "non-regulated" pools and regressed as a function of the exogenous explanatory variables. This method may also be enriched by incorporating time-series element in addition to spatial element. When the reform and control pools have comparable trends before reform, and pre-post reform data is available, the estimation may be termed "difference-in-difference". The term refers to measuring the impact of reform as a difference in outcomes from the outcome realised without one. Figure 3 illustrates this concept.

Figure 3: Measuring Impact Using Spatial Variation Pre-/Post- Reform



Examples

An example that uses this kind of approach is a study (Aghion, et al 2007) that examines the effect of the dismantling of the license raj – a system of central controls regulating entry and production activity in the sector—in the registered manufacturing sector in India. The study examines 16 states that had varying degrees of pro-worker or pro-employer labour regulations over the course of 18 years, and which all experienced the central delicensing regulation. Since the process of delicensing was over the course of a period, the study uses Monte-Carlo simulations to draw random years in which an industry is delicensed and compares the probability of an industry being delicensed in a given year with actual data, which turn out to be fairly comparable. It uses the difference-in-difference approach for the analysis, and finds that the effect of the delicensing was unequal across the 18 states. In states with pro-worker regime, industries grew less rapidly than in states with pro-employer regulations.

Another example is a World Bank report (Kee et al 2007) that uses cross country cross-industry time series data from 42 countries to estimate the impact of the introduction of a comprehensive competition law on firm markup of price over marginal cost (a standard measure of a firm's market power). Controlling for import competition, the number of firms and industry fixed effects (FE), the authors surprisingly find no statistically significant effect on firm markup.

Another IADB report (Micco et al 2004) uses variation in a cross-sectional sample of countries that either did or did not enter into an "open-skies" bilateral competition reform that allowed more access to foreign freighters. They develop an econometric framework for estimating the impact of the introduction of bilateral agreement in freight transport on cargo freight prices. They find through cross country OLS and fixed effects estimation that the quality of regulation[11] and a more open cargo market drove cargo prices down by 8-14 percent.

Studies have also exploited natural variations from a policy reform in a country that affects some firms/markets, but not others. If some firms/markets are affected by the reform (treatment group), and others are not (control group), exogenous time-series changes affecting the country can be controlled for. Symeonidis (2008) exploits the fact that at the time of the introduction of cartel policy reform in the UK in the 1950's, some markets were cartelised while others were not, and thus not affected by this new policy. The study runs a regression using manufacturing firms over a 20 year period to analyse the effect of cartel collusion on labor productivity. The study uses heterogeneity in cartel behavior at the time of reform to create a treatment and control sample. The study concludes that previously cartelised firms had substantial increases in productivity after reform when compared to already non-cartelised industries.

A World Bank study (Nicoletti and Scarpetta 2003) empirically investigates the role of cross-country differences in pro-competitive regulatory reform and privatisation policies in explaining variations in growth of OECD economies. The authors use multifactor productivity (MFP) as the dependent variable relating to gross domestic product (GDP) growth, and regress it on country-level indicators of regulation and privatisation as well as industry level (manufacturing and service) indicators of entry liberalisation. The regression results show statistically significant impact of reform at the country and industry level on MFP. The authors interpret large observed differences in growth rates across OECD countries as a consequence of variations in regulation regimes.

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[11] Regulatory quality measures the incidence of market-unfriendly policies such as price controls or inadequate bank supervision, as well as perceptions of the burdens imposed by excessive regulation in areas such as foreign trade and business development. The authors use this index as measured formulated by Kaufmann, Kraay and Mastruzzi (2003).

In cases where it is difficult or impossible to obtain two sample sets with and without the regulatory constraint, it may be possible to use data on markets or firms that have the same qualitative regulatory constraint but with quantitative variation over time and space that result in different outcomes. For example, although two countries may both have enacted competition law (i.e. same qualitative constraint), a constructed quantitative index may suggest different degrees on improvements due to laws. This variation in the index may be empirically exploited to study the impact of reform. This approach requires a thorough understanding of the regulatory environment and careful application of controls to take into account differences in conditions that may affect the outcome independently of the regulatory constraint.

An example where this approach is taken at a comprehensive level comes from a study that builds a Competition Policy Index (Buccirossi 2012). This study first creates a Competition Policy Index (CPI) separately for institutional quality, enforcement, merger and antitrust, and then aggregates these components into a single CPI score for the country. The authors then regress these indicators on TFP growth and similar measures of firm performance for 22 industries of 12 OECD countries over a 10 year period using fixed effects and instrumental variable estimations. Based on these estimation techniques, the authors find large and significant effects of both the aggregate CPI and individual component CPI on TFP growth.

Another similar study (Voigt 2006) uses survey techniques to develop four non-subjective indicators: (a) the content of competition laws, (b) the degree to which they incorporate an economic approach, (c) formal independence of competition agencies, and (d) factual independence of the agencies. Cross-country variations in these indicators are then used in an econometric estimation to explain differences in total factor productivity of different countries. Voigt uses a sample of about a hundred countries, and finds that all four indicators contribute to differences in factor productivity in the expected direction.

Pros/Cons

In order to correctly estimate the effect of competition policy reform, researchers face the task of comparing post reform outcomes with a counterfactual (i.e. the outcomes if reform had not been implemented). The difference in these outcomes, all else being equal, would then be attributable to the reform. The advantage of variations in spatial data (across countries, or across regions within a country) is that it allows researchers to simulate a counterfactual. Hence, this method produces more precise estimates of the effect of policy reform than basic time-series regression. However, on the down side, this method is quite data intensive. It is often difficult to find two sample sets that are characteristically similar, except for the regulatory reform being studied. Spatial data analysis also does not give a broader view of what may have happened over time. Biases due to omitted variables, time trends and exogenous shocks can be limited with proper counterfactual assignment.[12] (Buccirossiet al. 2008: 465).

STRUCTURAL ESTIMATION/SIMULATION MODELS

An alternative approach uses economic models that can run simulations of equilibrium for counterfactuals to determine the effect of regulation. Structural econometric models detail the economic and statistical assumptions required to estimate economic quantities. The approach requires accurate identification and specification of demand and cost functions that are inter-related and together constitute a model of either the entire economy (general equilibrium) or a portion thereof (partial equilibrium). In structural models, economic theory is used to develop mathematical relationships between a set of observable "endogenous" variables to another set of observable "explanatory" variables. Economic theory also may relate the endogenous variables to a set of unobservable variables, which may not always be estimable.

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[12] Counterfactual assignment is highly dependent on availability of high quality data on comparable country or sector, and very case specific. It is not possible to postulate whether such controls will be available in all cases.

Therefore, these models typically use statistical assumptions about the distribution of the unobservable variables of the model. Together, these economic and statistical assumptions characterise an empirical model that is capable of rationalising all possible observable outcomes. The commonly used structural models to determine the degree of competition utilise the New Empirical Industrial Organisation (NEIO) literature. NEIO literature describes techniques for estimating the degree of competition, focusing more on industry and firm-specific details for modeling demand, cost and competition. The NEIO approach involves the development and estimation of structural econometric models of strategic, competitive behavior by firms, which are assumed to behave to maximise profit.[13]

A number of economic models exist and have been used extensively for policy analyses.

Examples[14]

The Australian Productivity Commission, for example, conducted a 2005 study utilising this approach to assess economy-wide gains from the introduction of the 1995 National Competition Policy (NCP). The study utilised a general equilibrium model (Monash model) to determine productivity improvements and price changes in six specific sectors (electricity, gas, urban water, telecommunications, urban transport, ports and rail freight) over the period 1989-90 to 1999-00. The study acknowledges that it is difficult to establish causality of improvements in outcomes to the NCP directly, but it asserts that microeconomic reform and NCP in particular, contributed to the positive impact. The study is supplemented with qualitative surveys that help corroborate the impact of the NCP on price changes.

The National Institute Global Econometric Model (NiGEM), developed by the UK National Institute of Economic and Social Research, is a one-sector model, designed to perform short-run forecasts as well as long-run simulation studies. It has been used to assess policy implications. For instance, the UK Department for Work and Pension commissioned a 2011 study to analyse the macroeconomic impact of extending the working age. The study runs several different simulations of increasing working life by one, two, or three years. This approach is supplemented with a counterfactual analysis of the negative impact if the extension of working life did not take place. Such one-sector models can be analytically applicable to broad set of policy changes including industrial organisation and competition law.

The General Trade Analysis Project (GTAP) model, developed by Purdue University, is a similar static general equilibrium model used to analyse the impact of trade and other reform. For instance, Elisabetta and Tsigas (2011) use it to analyse the impact of reduction in the EU's support for the price of sugar[15] on income distribution of African households. They combine expenditure-distribution statistics from household survey of various African countries with information contained in the GTAP database. This allows them to identify several poor households groups and they group all non-poor households into a single income group. While their analysis is only peripherally related to competition, it provides a good framework to modify the standard GTAP model to analyse distributional impacts due to policy changes.

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[13] These are similar to other models which are built on the assumption of utility maximisation behavior of consumers. Where they differ is that in consumer choice models, one consumer's choice has no impact on another consumer's choice and therefore, they are assumed to be independent. In NEIO models, however, firms need to factor in the choices of other firms as a reaction to its competitor.

[14] There exist a number of theoretical economic models based on discrete choice product differentiation. For a sampler, Scopelliti (2009) provides a survey of literature on endogenous growth models with product differentiation and various assumptions on competition parameters, such as product varieties, patents, technological change, etc. Examples presented in this paper highlight models that have been used to empirically estimate the benefits of competition enhancing policies.

[15] The Sugar Protocol as part of the Economic Partnership Agreements (EPAs) between the EU and several sugar exporting African countries was instituted in 2008

Aghion and Schankerman (2004) provide a theoretical model highlighting the mechanism by which competition policies may impact welfare. Using a variation of Salop's (1979) circular model of competition with asymmetric cost, authors derive endogenously generated demand for competition reform, as well as the possibility of low-competition political economy trap. The model looks specifically at welfare gains from reducing "transportation cost" (a catchall phrase for policies, institutions and infrastructure that intensify competition) in the form of direct benefit and indirect gains (which the authors claim are missed by traditional cost-benefit analyses). To illustrate the relative importance of direct and indirect welfare gains from welfare reform, authors run a simulation model. The simulation results suggest that the indirect selection effects are a substantial portion of social welfare gains from competition reform.

Similarly, an OECD study in France uses such a simulation model to estimate the effect of regulatory changes. The study simulates changes in the French economy if the competition policies of the least restrictive regimes of the EU were adopted. They estimate benefits to all sectors (including to those where France may not have a competitive advantage) with a 3.2 percent decrease in prices, and 2.4 percent increase in employment and productivity.

Pros/Cons

Unlike the empirically-driven estimation methods discussed above, the advantage of using structural estimation models is a strong background in modern economic theory (Davies & Ormosi 2010; Budzinski 2011). The effects of reform derived from the model can be explained by the interactions of several economic variables. Furthermore, the accuracy of the underlying model can be tested through calibration with real market data. However, structural estimation models, particularly CGE models, are often referred to as "black boxes" because of the intricacies of the inherent economic equations and the high cost of entry for new modelers. It takes time to understand a model and be able to tailor the analyses to specific cases. Data demands are not insignificant. The use of CGE modeling in a variety of economic situations including trade, international finance and monetary policy has led to a general acceptance of these techniques.

COST-BENEFIT ANALYSES

While all studies above highlight the benefit of introducing competition policy reform to consumers and producers, they do not explicitly consider the cost of enacting and enforcing competition policy law. Cost-benefit analysis (CBA) is an alternative approach to evaluating the effect of policy reform, which as the name suggests, examines both costs and benefits. CBA uses monetary measure as a metric of aggregate change in individual well-being resulting from a policy decision. Individual welfare is assumed to depend on the satisfaction of individual preferences, and monetary measures of welfare change are derived by observing how much individuals are willing to pay, i.e., willing to give up in terms of other consumption opportunities (Kopp, Krupnick, Toman, 1997). Individual welfare is then aggregated to estimate social welfare. Projected costs and benefits into the future are calculated with a discount rate to determine their net present value. A cost-benefit ratio is then calculated by dividing the benefits of the reform by the costs.

Examples

A World Bank paper (Clarke, Menard, Zuluaga 2000) uses the CBA approach to examine the net effect of the Government of Guinea's 1989 water reform programme. This reform included a lease contract for operations and maintenance of the government's urban water supply with a private operator and established a separate public entity for ownership of assets and investment. The authors analyse the net effect on various stakeholders, including consumers, government and foreign owners or private operators. The study found that both labour and total factor productivity improved significantly following reform. Although prices increased, it was more than offset by increased access to new customers and hence, net consumer welfare was significantly positive.

Using firm level data from 26 firms over four markets affected by the 1998 Dutch merger control legislation, a study uses the CBA approach to find net benefits[16] of over 100 million Euros per year over the five year period following reform (Postema, Goppelsroeder, Bergeijk, 2006). The study measures total benefits in terms of consumer savings, i.e. what the consumer did not have to pay because of the merger control decision. To calculate consumer savings, the study uses a simulation model to estimate increases in prices and change in demand in the event of merger. The study generalises the results for all markets with the estimated price increases and welfare changes to arrive at the total benefits.

Another study commissioned by the Australian Government Attorney-General's Department undertook a cost-benefit analysis of enacting National Legal Profession Reform proposals, as opposed to the separate regulation of the legal profession by each state and territory. The CBA examined the effect of the new arrangement on legal service providers, consumers, and governments using a 10-year horizon and three scenarios with different discount rates. Results were scrutinised with a sensitivity analysis using Monte Carlo simulations. The study calculates benefits in terms of financial savings to firms and regulators, time cost savings, and other efficiency gains; it also calculates costs in terms of cost of implementing the reform for regulators, cost of compliance and other costs to consumers. The study finds net annual benefits ranging from US$16.9 to US$17.7mn if the reform were enacted.

Pros/Cons

At first sight, cost-benefit analyses may seem relatively easy to perform, especially when examining specific reform activities and targeted markets. However, the larger the scope of the evaluation, the more difficult is it to monetise all costs and benefits. While this approach does not deal directly with establishing causality of reform, it provides assessors and policy makers with a quick view of whether proposed reform options are worth it. On the downside, however, a sound cost-benefit analysis requires that indirect and intangible benefits are also monetised. This is often difficult to do. Critics of cost benefit analyses often cite that governments understate the cost of complying with competition policy reform.

For example, while the direct cost of establishing the regulatory reform agency and opportunity costs are included, many studies fail to deal with costs relating to general equilibrium effects on other agents, and do not correctly quantify costs relating to future uncertainty (Kopp et al 1997). CBAs also use individual wellbeing characterised by preference satisfaction and aggregate it to calculate social wellbeing. It is often empirically difficult to estimate individual wellbeing and the simple aggregation to estimate social wellbeing is often critiqued. In the case of regulatory reform, in general, or competition law, in particular, benefits and costs have to be thoroughly investigated using best economic principles and case-specific idiosyncrasies to derive correct cost benefit ratio. Overstating either the benefits or the costs can severely misrepresent the outcome.

SURVEYS

Often, qualitative assessments are used to paint a broader picture of the impact of reform, than that generated by secondary data alone. In some cases, especially in developing countries, primary data may not exist at all. The approach highlighted here typically includes surveying market participants, including regulators, to inform assessors of the impact of competition to all parties involved. Information collected from such surveys may be coded and analysed quantitatively using econometric models, and/or may simply be used to give a voice or a context to the regulatory environment and may be more qualitative in nature. Such surveys can be used to complement the results of other assessments discussed above. If

[16] Net benefit refers to gross cost subtracted from gross benefit

crucial information required to ascertain benefit is missing in existing household or firm data, pertinent survey questionnaire could be conducted to paint a more complete picture.

These kinds of surveys are useful to evaluate the performance of regulatory reform, i.e. how well a Competition Authority is viewed as doing its job well. In cases where primary data from household or firms is missing or incomplete, purpose-made survey of entities directly impacted by competition policy reform could be used to determine perception of benefit to consumers and producers before and after reform.

Examples

The authors (Pellarzi et al 2011) analyse the fee structure and quality of lawyers remaining in the profession after new deregulation laws made the industry more competitive. To do this, the authors use regression analysis on a survey of lawyers collected after reform, as well as publicly available lawyer registry, and find that better quality lawyers are more likely to stay, and lawyers more likely to exit are those more likely to have gained an unfair advantage due to nepotism.

The East and Central African regions underwent a seed policy harmonisation programme which standardised certification. This reform allowed clarity in the marketplace, and led to increased market entry. A report published by the Association for strengthening Agricultural Research in Eastern and Central Africa (ASARECA) uses a post-reform perception survey supplemented by production and price data before and after reform. The report shows welfare gains through decrease in seed prices, and increased availability of domestic and imported seed varieties.

A World Bank paper (Haider, 2012) utilises time-series regression for the period 2006 and 2010 using data from the Doing Business indicators for 172 countries. A dummy is assigned for any year that a regulatory reform is implemented; the average of these dummy variables is then modeled as a function of such exogenous variables as economic growth, regulatory reform, foreign direct investment, fixed capital formation growth, population, trade, government spending, financial freedom, political stability, rule of law, control of corruption. The author finds that, on average, each business regulatory reform is associated with a 0.15 percent increase in GDP growth.

The USAID Vietnam Competitiveness Initiative, for instance, has used surveys to develop a Provincial Competitiveness Index (PCI) that measures the ease of doing business, economic governance, and administrative efforts by local governments of provinces and cities in Vietnam. The PCI is developed using nine sub-indices that include entry costs; land access and security of tenure; transparency and access to information; time costs of regulatory compliance; informal charges; proactivity of provincial leadership; business support services; labor and training; and legal institutions. While this initiative did not directly measure outcome of policy reform that this background paper seeks to highlight, it provides value in measuring the level of competition. This may prove useful if comparing efficacy of competition law between countries or sectors is required.

Some other cross-country surveys are more sweeping in their coverage of reform, and numerous modules have pertinent relevance to competition reform. An example of such a survey is the World Bank's Doing Business, which collects information through surveys administered by local experts on the subject matter or business transaction such as lawyers, accountants, and architects. The objective is to measure the complexity of business regulations and quantify the ease of doing business across countries via indicator sets and rankings. The indicators cover common transactions such as starting a business or registering property based on standardised case-studies. Another complementary survey is the World Bank's Enterprise Survey, which is a firm-level survey of a representative sample of the private sector in an economy. The surveys cover a broad range of business environment topics including access to finance, competition, corruption, infrastructure, crime, and performance measures.

Pros/Cons

While surveys may appear simple to conduct, they must be designed with great care. The questions require careful preparation so that the information collected is reliable. The sample of respondents must be random and representative of the group of interest and must be large enough to avoid biases. While surveys provide useful information, they are also expensive to conduct, especially if they entail field interviews. Surveys are useful to generate primary data in cases where needed data is unavailable.

Additional Notes for Consideration

CORRELATION VS. CAUSATION

Various studies listed above have shown significant correlation of improved economic outcomes with regulatory reforms. This is a relatively weak analysis of the impact of competition policy reform, and it only establishes that improvement in competition law was accompanied by improvement in outcomes for consumer and producers. A fundamental problem underlying evaluating impact of reform is that of causality, and not all studies can claim to be estimating the causal link between reform and benefits. Establishing causality deals with proving that the competition reform directly *led* to the benefits. Causality of improved aggregate economic outcomes, such as increased income, or employment, to a package of regulatory reforms is difficult to establish for several technical reasons.[17] In the absence of ideal data that can allow the use of various econometric techniques, correlation studies can still be a powerful tool to establish connection between effective regulation and improved economic outcomes.

INTERACTION OF COMPETITION POLICY REFORM AND OVERALL REGULATORY REFORM

It is important to recognise that competition policy of a nation exists within the overall regulatory framework of a country. Increasingly, governments are incorporating in their regulatory reform agenda (such as for telecommunications, ports, etc.), goals of enhanced competition. Although it is common for competition and regulatory reform authorities to operate as distinct government agencies (World Bank 2010), their interaction is vital to the success of each. A World Bank report (2010) on competition policy highlights the existence of some form of competition policy in over 100 countries. The report highlights that if this co-dependency of mutual effectiveness is not recognised and managed, there is a risk that competition policy reform and enforcement, and ultimately the benefits to consumer and producers is unplanned and inefficient. This indicates that evaluations of impact of competition policy may not be a standalone activity, rather integrated within a larger regulatory assessment. Prospective evaluations of regulatory options are increasingly being applied by governments to assess the impact of proposed regulatory options. Regulatory Impact Analysis (RIA) assesses the likely effects of regulatory options. Some questions that are often asked in such evaluations include:

- Impact/Effectiveness: How much would the regulatory option change targeted behaviour?
- Cost-effectiveness: What is the unit cost for the regulatory option?
- Efficiency: What is the net benefit of the regulatory option?
- Equity: How will the regulatory option affect different groups?

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[17] Standard Ordinary Least Square (OLS) regressions that are the staple of econometric analysis are only able to establish correlation between the dependent and independent variables. In order to ascertain a causal link, techniques such as Instrumental Variable regression, Vector Autoregression (exploiting lags and timing of events) are required.

A RIA relies on evidence, utilising public consultation with target groups, and assessing potential economic, social and environmental impacts. RIA is employed by numerous countries including several developing countries such as Bangladesh, Uzbekistan, Vietnam, Egypt, Indonesia, Cambodia, and Kenya.[18]

USEFUL GUIDELINES

The nature of a positive impact assessment of reform is that it does not tell us why a particular reform worked or did not work, and what should be changed to obtain better outcomes. It is important to acknowledge the limitations of results using the methodologies illustrated above. In particular, the methodologies above focus primarily on final outcomes, and not the process or what may be precluding better outcomes. A comprehensive assessment may wish to look at both the *impact* and the *effectiveness* with which the reform is being applied. To this end, there are several relevant guides that are intended to help assess the effectiveness or quality of competition policy, or to help identify barriers to improved competition.

The DFID Competition Assessment Framework is one such operational guide designed to assist policymakers in developing countries identify technical, financial, legal, economic, or political barriers to competition. It is intended as a diagnostic tool and sets out steps to analyse competition by sector. These steps include identifying the market and competitors, examining market structure, looking for barriers to entry, looking for anticompetitive conduct, considering vested interests and the principal beneficiaries, and identifying government policies or institutions that limit competition.

The Framework also provides a summary of key issues prevalent in certain sectors, namely agriculture, construction, distribution, energy, finance, manufacturing, telecommunications, and transport. A study that has applied this Framework, commissioned by DFID, (Ellis and Singh 2010) examines how the policy framework (such as the existence of a competition authority, degree of state ownership, openness to trade, etc.) affects degree of competition in a product market, and how the degree of competition affects market outcomes such as prices, competitiveness, innovation, and access to services. The study looks at four product markets (sugar, cement, beer, and mobile phone services) in five countries (Zambia, Kenya, Ghana, Vietnam, and Bangladesh).

The study largely utilises secondary data for the analysis, but also supplements it with surveys to collect primary data and other relevant information. Main variables of interest include retail prices, exports, access to services, innovation, domestic vs. foreign producers; number of market players, market concentration, profitability, entry and exit, changes in market share, etc. Although the study generally evaluates these variables for each country's product markets, it does not stipulate methods utilized to make more rigorous cross-country comparisons feasible.

Another popular "toolkit" is developed by the OECD to help governments identify unnecessary restraints on market activities and develop alternative less restrictive measures. The toolkit lists a series of questions called the Competition Checklist that screens for laws or regulations with potential to be overly restrictive. The toolkit is designed for governments in the evaluation of laws and regulations, but also provides helpful resources for evaluation of competitive impacts of regulation.

A World Bank paper (Foster 2000) is another helpful resource meant to provide operational guidelines, with suggested indicators, to measure the impact of energy reform on welfare of poor households. The paper defines welfare in terms of three categories—basic needs,

[18] For a sampling, see: https://www.wbginvestmentclimate.org/advisory-services/regulatory-simplification/business-regulation/better-regulation-for-growth/ria-country-specific-references.cfm

monetary, and nonmonetary, and suggests that measuring welfare on these categories is best when poor households are divided by quintiles or deciles, rather than using a pre-defined definition of the poor. Some suggested indicators for measuring the impact of energy reform include coverage of energy services; "reliability index" constructed by asking what share of time energy is obtained from a source; consumption concentration index; share of household income on energy; average fuel cost per effective unit of energy consumption; average subsidy per effective unit of consumption; exposure levels of poor households; incidence of respiratory illnesses etc.

Suggested Methodology

This section is a first attempt to build an analytical framework for the CREW project, based on the brief survey of literature presented above. The methodology will need to be refined further to account for the extent of data availability in the countries and sectors selected, the capabilities of country partner organisations to conduct the analysis, and feasibility of the methodology to be replicated elsewhere.

The landscape of the CREW analysis is characterised by three key factors:

> (1) CREW will focus on developing countries, where data availability will be a significant challenge. Hence, a data-intensive methodology may not be the optimal choice for pragmatic reasons, even though the methodology might be theoretically rigorous.
> (2) The objective of the CREW project is to build a "tool" that can be used to analyze the benefits of competition reform in other countries and sectors. Hence ease of use and replicability of the analysis will be essential. Building flexibility and simplicity into the "tool" will be important.
> (3) The ultimate objective of the analysis will be to inform policy makers and other stakeholders of the impact of reform. Hence, any policy or reform recommendations derived from the analysis ought to be easily understandable to stakeholders.

With these factors in mind, we rule out structural models as a possible methodological approach, since they require highly precise data, and a solid foundation in economic theory to support a meaningful analysis. It is unlikely that the quality of data required, for example to calibrate structural/simulations models will exist in the context of developing economies this project focuses on. There will also be a steep learning curve for using models that most practitioners are not intimately familiar with.

Similarly, very rigorous time or spatial variation regression analyses will likely not be possible across all four countries and two sectors. While time variation and spatial variation analysis pre- and post-reform will offer substantive results, we foresee data limitations to be a significant challenge for the CREW project.

Since the objective of the CREW project is to equip reform advocates with the tools to champion reform agenda, an effective methodology to use might be *ex-ante* evaluations of potential reform options in the selected sectors and countries. This would give stakeholders a sense of what the likely impact of different options are, providing them not only food for thought but concrete numbers in hand to make their case. It will be pertinent is to show policy makers the impact, in tangible monetary terms, of removing or reducing barriers to increased competition in certain sector(s). On the other hand, if the objective is to inform policymakers of the realised impact of reform already carried out, an *ex-post* evaluation approach would be most suitable. *Ex-post* evaluations would be valuable and of interest to stakeholders in the respective countries, and may also work as a "lesson learned" for countries or other sectors contemplating similar reform.

Whether CREW follows the *ex-ante* or the *ex-post* option would need to be determined during follow-on missions, after the four countries and two common sectors have been finalized. In

some cases, it may be the case that no real reform in the recent past has taken place, but would thus make *ex-ante* evaluation the default approach. In others, certain reform options may have been exercised and hence, it may be useful to see what the impact has been.

Which method is applied also depends on whether a consistent set of results are intended to be derived from the CREW analysis. The proposed Fact Finding Missions in a subsequent phase of the CREW project will need to determine the type of reform undertaken, if any, in the sectors and countries chosen. If the finding is that both sectors (or at least one common sector) in the four identified countries have experienced some type of reform effort that can be quantified, then, an ex-post evaluation may be conducted.

We thus propose a system of evaluation where a basic common framework of analysis is applied to every country/sector, but allow for successive improvement in analysis when more data is available for specific cases.

METHODOLOGICAL APPROACH

We advocate the use of a mix of data—both quantitative, qualitative (even anecdotal) obtained through secondary and primary research—that can generate meaningful results. In particular, we recommend starting with the DFID Competition Assessment Framework to identify key impediments to competition in each country and sector. This analysis can be part of the Country Diagnostic Report (CDR) that the CREW project will be undertaking in Phase I. We suggest that the CDRs also focus on gathering data through surveys of consumers, producers, and competition authorities on the costs and benefits of the reduction or complete elimination of the identified impediments. The surveys should focus on indicators, such as prices, output, investment, employment, and entry but also gather information about possible changes in technology, quality or other relevant impact. We recommend using the "Porter's Five Forces" as a frame of reference during the data collection and analysis phases.[19] Simultaneously with the perception surveys, data should also be collected from relevant government agencies, such as national statistical bureaus, line ministries, business associations, etc. as they are available.

The data gathered or generated from the CDR surveys can then be used to quantify realized impact or build "what-if" scenarios to analyse possible impact of a particular reform targeting one or more impediments identified. Depending on the kind of data gathered or generated, this kind of analysis could be done using simple regression analysis, or a cost-benefit approach. Since one of the objectives of the CREW project is to develop a replicable tool, we recommend the use of simpler yet rigorous methods, rather than complex models. We foresee cost benefit analyses as the primary study method for two main reasons. First, CBAs are relatively simpler to understand and use, particularly if one is guided by a "tool." Second, CBAs can generate data in tangible monetary terms for likely costs and benefits that can then be used for advocacy materials.

The recommendations are summarised in Figure 4.

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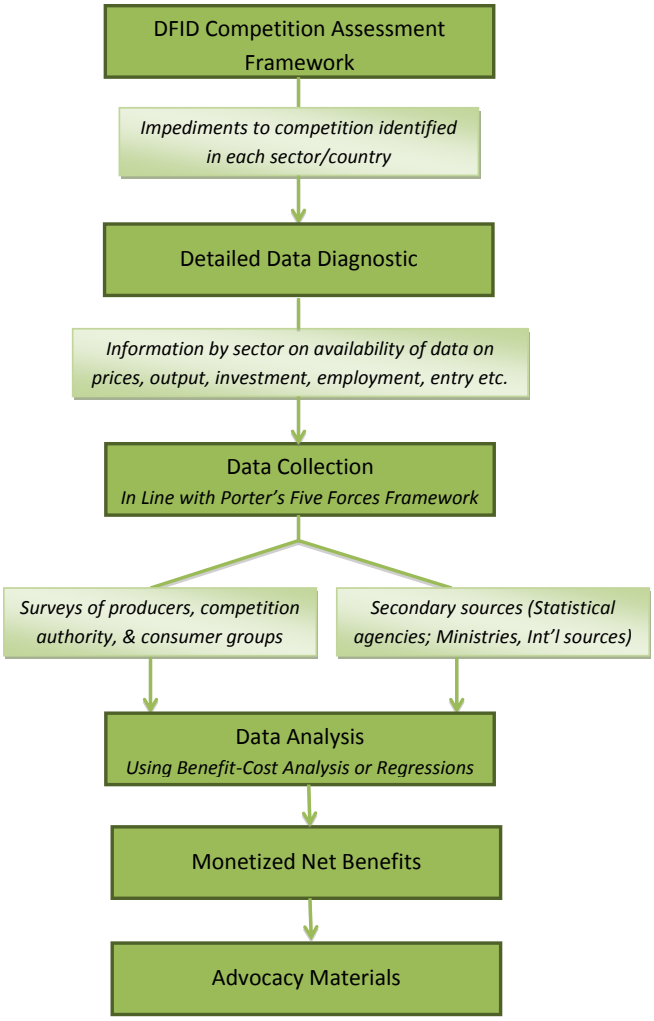
[19] "Porter's Five Forces" is a market analytical framework that identifies five sets of internal and external forces that determine an industry's strength, profitability, and competition. These include: (i) Intensity of competitive rivalry; (ii) Potential for new entrants; (iii) Bargaining power of suppliers; (iv) Bargaining power of consumers; and (v) Threat of substitute products.
https://en.wikipedia.org/wiki/Porter_five_forces_analysis

Figure 4: Suggested Methodological Approach



Country Selection

Developing countries have embarked upon enacting and implementing competition laws fairly recently, with the most significant wave of enactments in the 1990's. What impact the laws might have had on the level of competition in target markets and the welfare of consumers and producers is yet being fully realized in most cases. It is no wonder that there are dismally few studies that analyze empirically what factors contribute to the greatest impact of competition law or reform in developing countries.

A telling study by Kronthaler (2010) empirically tests what factors might contribute to the *effectiveness* of recently enacted national competition laws. The study finds that the level of economic development, corruption, and the length of time competition law has been in place matter, among other things. In particular, the study suggests a significant positive relationship between the effectiveness of competition law and both the level of economic development and the time a competition law exists. The more developed a country, the more effective its enacted competition law. Similarly, time matters in the implementation of enacted competition laws. The longer the time, since the enactment, the more effective implementation will be of the law. Effectiveness of competition laws also seems to improve as perceived level of corruption decreases.

Our preliminary basis for country selection relies on this study. While Kroanthaler (2010) examines factors contributing to the *effectiveness* of competition laws, we note that the *impact* of competition laws will depend critically on how effectively it is implemented. In our country selection process, we also utilise several project implementation considerations. We detail our approach and the shortlisted countries in the following sections.

Selection Approach

CUTS International reiterated the need to satisfy at least the following conditions in the selection of four countries for the CREW project.

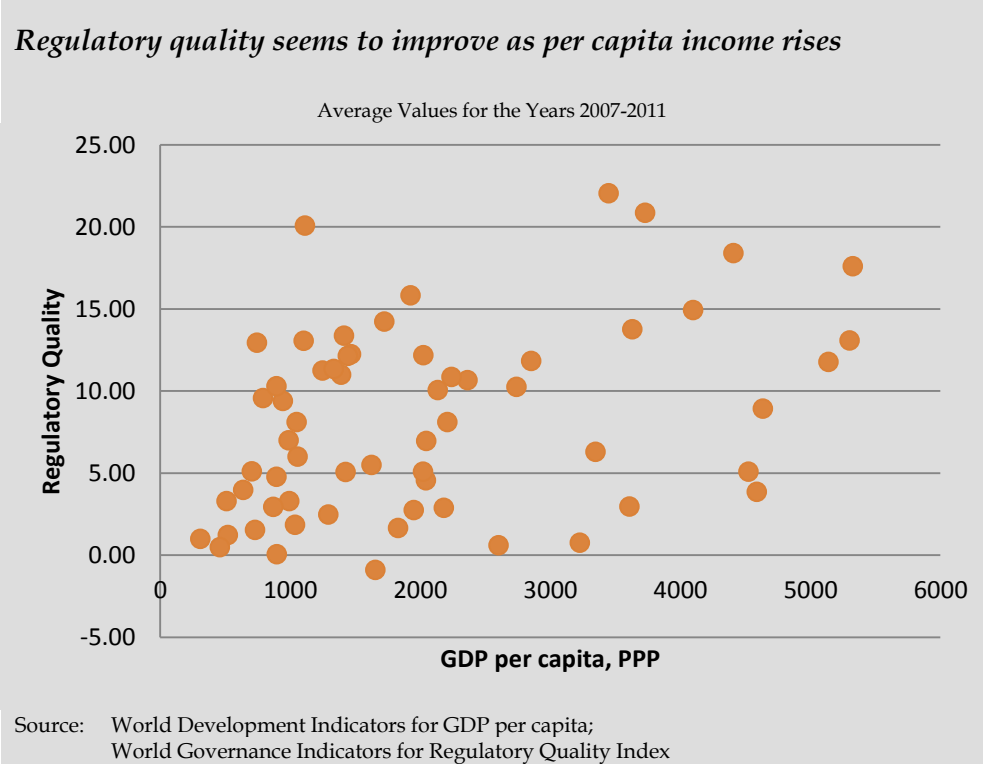
— Two countries from Africa and two from Asia
— At least one SADC country
— At least one ASEAN member state
— At least two DFID priority countries
— History of CUTS engagement in each country
— Anglophone countries in Africa

Taking into account these conditions and the Kroanthaler (2010) study, we begin with a list of ninety-nine countries in Africa and Asia. We then employ a three-step approach to screen a shortlist of countries for selection for the CREW project.

STEP 1: SELECT COUNTRIES BASED ON INCOME

The focus of the CREW Project is on developing countries in Asia and Africa. As income variation within these groups can be quite substantial, the rationale of this step is to eliminate very small economies that may not have the capacity to effectively implement competition laws. This is consistent with Kroanthaler (2010)'s finding that competition laws are more effectively implemented in countries with higher levels of economic development. Indeed, we see a positive correlation between income and regulatory quality amongst the developing countries in Asia and Africa (see Figure 5).

Figure 5: Regulatory Quality and Per Capita Income



Source: World Development Indicators for GDP per capita;
World Governance Indicators for Regulatory Quality Index

We use two dimensions of income. First, of the 99 countries in Asia and Africa, the focus is on developing countries. We use the World Bank definition of developing countries falling under the low and lower-middle income group thresholds.[20] This immediately screens out 32 countries, including the two Association of Southeast Asian Nations (ASEAN) countries – Singapore and Brunei. Of the remaining 67 countries, we only select those countries whose average GDP per capita (in current US$) in the past five years (2007–2011) is greater than US$600.[21] This screen gives us a potential list of 44 developing countries.

STEP 2: SELECT COUNTRIES WITH RELATIVELY EFFECTIVE POLICIES.

A second level of screening is based on the quality of regulatory reform in each country. Here, we screen countries based on whether or not their perceived level of regulatory quality is on par relative to others in the group. The objective is to arrive at countries which appear to have relatively effective policies in place with the view that an analysis of these countries will block out noise created by ineffective policies or failed implementation while measuring the impact of a competition reform or law.

In lieu of screening countries based on whether or not it has a competition law enacted,[22] we used the World Economic Forum's Global Competitiveness Report sub-index "Effectiveness

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[20] Economies are divided according to 2011 GNI per capita, calculated using the World Bank Atlas method. The low income groups are those with US$1,025 or less; and lower middle income, US$1,026-US$4,035.

[21] The US$600 threshold represents two-third of the median income per capita of the 67 countries.

[22] We had suggested using "Having a competition law enacted" and "Number of years since the enactment of the competition law" as criteria within this step for screening countries. However, CREW Project Advisers stressed the need to include a country without a national competition law in the final set of countries. On further reflection, these criteria were eliminated.

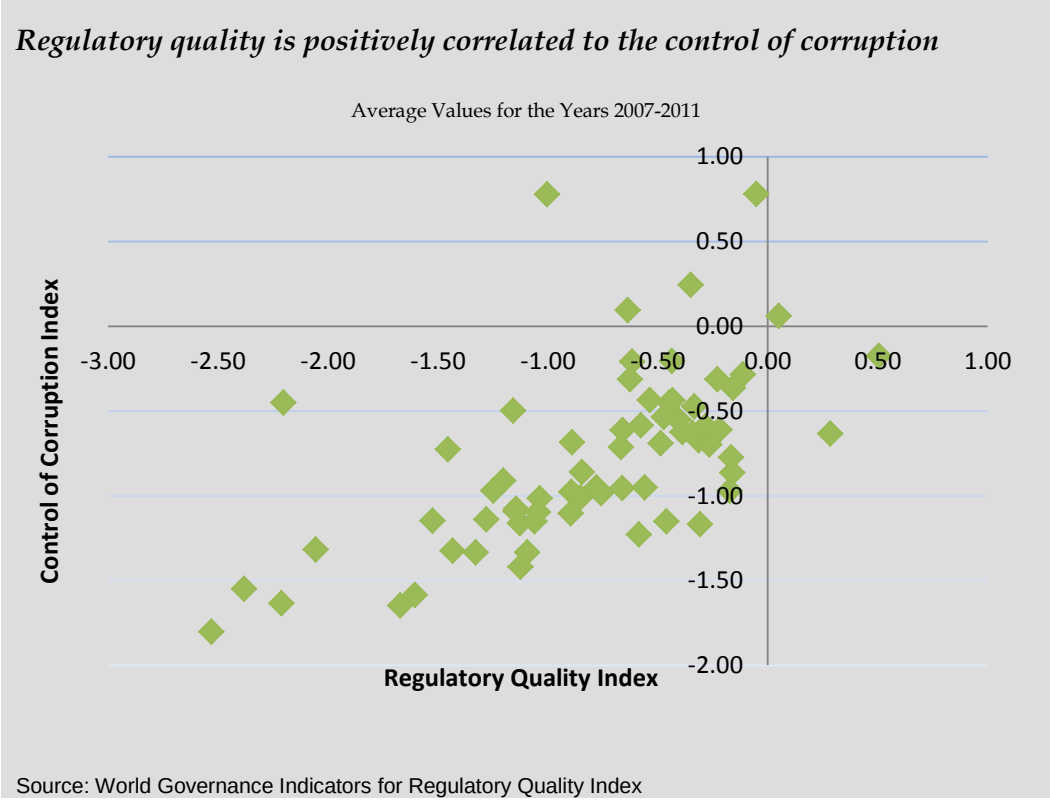
of Anti-monopoly policy" as a preliminary criterion for selection. This index is derived from an Executive Opinion Survey and is expressed on a scale of 1 to 7, with 7 being the most desirable outcome. We used 3.5 as our selection threshold, eliminating a further eleven countries whose average effectiveness of anti-monopoly policy over the past two years was less than or equal to the threshold.[23]

Next, competition laws are generally embedded within a larger context of regulatory environment. Hence, in addition to the effectiveness of anti-monopoly policy, we use a further screen—the World Governance Indicators' Regulatory Quality Index—as a proxy for the country's overall regulatory environment. This Index "captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development." It is computed from survey data from multiple sources. The index values range from -2.5 (very poor performance) to +2.5 (excellent performance). While zero would seem like a reasonable threshold for this indicator, most developing countries' score on this indicator is typically below zero. Hence, we selected those countries whose average regulatory quality index between 2007 and 2011 was greater than -1.0 as a potential CREW country. This gives us a list of 19 countries.

Finally, effectiveness of regulation can be critically undermined by widespread corruption. Consistent with Kroanthaler (2010), we use the prevalence of corrupt practices as a criterion for elimination of countries. We utilise the World Governance Indicators' Control of Corruption Index—also on a scale of -2.5 (very poor performance) to +2.5 (excellent performance)—as a further screen of regulatory quality. Figure 6 demonstrates that indeed regulatory quality is positively correlated with the control of corruption. Any country scoring higher than -1.0 was selected for consideration, giving us a total of 16 countries—10 in Africa, and six in Asia.

[23] The World Economic Forum introduced this index relatively recently in its Global Competitiveness report. Hence, we only used the past two years of this index for the average values, rather than the past five years, which we have used for smoothing out variations in all other indicators.

Figure 6: Regulatory Quality and Corruption



Of the ten shortlisted countries in Africa, Zambia is the only remaining SADC country and thus, Zambia is our default selection as one of the four CREW countries.

STEP 3: SELECT COUNTRIES BASED ON IMPLEMENTATION CONSIDERATIONS

CUTS International emphasised the need to factor in certain key project implementation considerations in the selection of countries. Specifically, in order to leverage on CUTS' existence relationships with local research and civil society organizations, CUTS stated a strong preference to work only in countries where it has prior experience. Further, CUTS emphasised the need to focus on only Anglophonic countries, so that project implementation costs related to translation services could be reduced. Using these criteria for elimination, we arrive at a list of eight countries—Ghana, Nigeria, and Zambia in Africa; and India, Indonesia, Philippines, Sri Lanka, and Vietnam in Asia.

Of the three countries in Africa, Zambia is our selected Sothern African Development Community (SADC) country. Between Ghana and Nigeria, neither of which has a competition law enacted, the choice of including Ghana was made for several reasons. First, Ghana's government has demonstrated a reform-oriented economic agenda. The country's leaders have repeatedly demonstrated political maturity, because of which the country has had a very stable political regime over the years. The country has consistently scored well in the 'Doing Business' rankings. Nigeria, on the other hand, has had problems in promoting economic reforms. The country's repeated efforts of having a competition law have failed due to inter-ministerial turfs. The country has had a fairly unstable political history, and the present government does not seem to be an exception. There are also issues of internal security that can pose 'risks' to project implementation, if the country is selected as one of the CREW countries. Therefore, Nigeria was eliminated as a choice for one the CREW countries.

We thus arrive at a shortlist of seven potential CREW countries, of which Ghana and Zambia are the two selected African countries. In Asia, our shortlist consists of India, Indonesia, Philippines, Sri Lanka, and Vietnam, of which two will be proposed for selection after the sector selection process.

Sector Selection

In this section, we present an overview of six sectors for consideration for the CREW project with a broad stroke.[24] The objective is to select two sectors for the CREW project based on this overarching analysis, and then to select specific product markets within those two sectors in Phase II of the project. This paper examines five sectors that were shortlisted in the discussion paper on the selection of CREW project countries, prepared by CUTS International. These sectors include: domestic fuel; electricity; pharmaceuticals; passenger transport; and staple food. In addition, we also examine the telecommunications sector, as literature review suggests that this sector has significant growth potential in developing countries.

Selection Approach

Our selection of two CREW sectors from the list of six above is based on a brief overview of the characteristics of the sectors. In particular, we consider whether there are dedicated sectoral reform efforts by the government, whether the sector appears to be competitive, whether the sector reaches the poorer segments of society; and whether there is data available to conduct a more in-depth analysis based on our suggested methodology for CREW in the earlier section. In order to make comparisons across countries, we assign numerical scores for each of the following criteria for each sector and each country. We then take a sum of the scores *across countries* and *across sectors* to see which countries and sectors score the highest. Our final recommendation of the four CREW countries and two sectors is based on this scoring system, which we detail in this section.

Primary criteria used for sector selection include:

- **Existence of a Regulatory Framework and Signs of Reform.** We examine whether there are sectoral policies and/or sector regulatory law. We review whether there are sector regulators and see whether there are dedicated sectoral reform programmes announced by the government. On the basis of this review, we assign to each country a score ranging from 0 to 4. The scale is as follows: 0 if there are no sector regulation or policy; 1 if there is a sector policy but no sector regulation; 2 if there is a sector policy and/or sector regulatory law; 3 if there is also a sector regulator or enforcement agency; and 4 if there are additional signs of reform.
- **Nature of Market.** For this criterion, we examine who the key players in the sector are, whether there are state-owned enterprises (SoEs), and whether there is a dominant player(s). Where possible, we examine market shares of key players to determine whether there appears to be competition in the sector. Where feasible, we examine whether there are consumer organisations or local think-tanks or other CSOs involved in the reform agenda of the sector. The objective of this criteria is to determine whether the sector is competitive or in the process of becoming so. If a sector appears to be competitive, especially following some reform, it will make a good case for selection for further analysis with the CREW project. The scale for scoring in this criterion is as follows: 1 if the sector has primarily a

[24] This analysis will not delve into specific product markets, rather focus on broad sectoral overview. At the discussion paper stage of the sector selection process, we felt it may be premature to look into specific product markets without considering overall sectoral characteristics. For instance, we examine the telecommunications sector broadly, rather than examining the mobile phones product market specifically. Specific product markets will be analysed and selected in Phase II of the CREW project.

monopoly or if there are no organised market players; 2 if the sector has one or a few large players with some other smaller participants; and 3 if the sector seems to be competitive.[25]

- **Data Availability.** This criterion is used for determining whether data is available in each country and sector to be able to conduct a meaningful analysis of the sector. For all sectors, data such as household surveys, Enterprise survey data conducted by the World Bank, aggregate data available from national statistical agencies will be relevant. In addition, we see whether there might be sector-specific data that could be useful. In line with our suggested methodology above, at a minimum, we should be able to analyse aggregate data on production, consumption, prices, market shares, annual turnovers, etc. If there are household-level or firm-level surveys that touch upon the sector under consideration, it allows us to delve further into our analysis. Further, if data is available both before and after a particular reform,[26] it presents us with an ideal case for analysis. For this criterion, we assign a score ranging from 1 to 3, where 1 indicates that there are aggregate-level data available; 2 indicates that there are micro-level household and/or firm data available; and 3 indicates that there are relevant data, particularly at the micro-level available, both before and after reform.
- **Impact on the Poor.** The objective of this selection criterion is to examine whether there is evidence to suggest that reform measures in a particular sector has or has not benefitted the poor and/or rural segments of the population. While increased competition in a sector *can* benefit the poor by increasing access, lowering prices, and increasing quality of service, the analysis here is not on future benefits but rather on whether the sector *has already* had an impact on the poor. The rationale is to select a sector that appears to have impacted the poor due to increased competition in the sector. We assign a score of either 1 for relatively low impact on the poor; and 2 for relatively high impact on the poor.

For each of the seven countries shortlisted in the section above, we examine the six sectors through the lens of these criteria. Below, we present a summary of our analysis for each of the six sectors.

ELECTRICITY

Electricity is an important sector for economic growth in any country, as it is an input in both consumption as well as productive activities. The governments of all seven countries—Ghana, India, Indonesia, Philippines, Sri Lanka, Vietnam, and Zambia—place much significance on the Electricity sector as is evident by the various energy sector policies and regulations that are currently in place. Regulations for the electricity sector with a dedicated regulatory body appear to be active for all countries. However, the nature of the market for the electricity sector is dominated by SoEs. In Sri Lanka, Vietnam, and Zambia, there are very few private sector players in generation, transmission, and distribution.

Even in a country like India, the system of electricity regulation is decentralised through a network of state regulatory commissions and where there are some private sector participants, SoEs have large market shares and much dominance over the sector. Philippines, Indonesia, and Ghana too have some private sector participants, but the state is still a dominant market player. There are still opportunities for expansion in the electricity sector in all countries. Electrification rate of the number of households ranged from just 18.8 percent in Zambia to 97.6 percent in Vietnam, suggesting that the impact on the poor in countries like Zambia could be further strengthened. Table 2 summarises our findings of the Electricity sector in each country by our selection criteria. Based on this review, the electricity sector scores a total of 57 out of a possible score of 84.

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[25] Here, we are compelled to define "competitive" as a structured condition, which is the number, size, and ownership of firms.

[26] For the purpose of determining data availability pre-/post-reform, we use the term "reform" loosely to mean the enactment of competition law in the country.

TELECOMMUNICATIONS

Telecommunications is a vibrant sector worldwide, with the advent of mobile phones, 3G broadband connectivity, and satellite television. It is no surprise that all seven countries have in place various sectoral policies and regulations. All but Sri Lanka and Vietnam have a dedicated telecommunications regulatory agency. The sector is a testament to increased access, lower costs, and higher quality due to increased competition. Ghana, India, Sri Lanka have multiple private sector service providers. Indonesia, Philippines, Vietnam, and Zambia also have many private sector participants, however, SoE provider(s) occupy significant market shares. Data on telecommunications at the aggregate level is available through international data sources, as well as national statistical offices, or the service providers themselves. Household surveys and enterprise surveys often have data available on the consumption and provision of telecom services. With a mobile penetration of over 75 percent in all countries, the sector has high impact on the poor as cellular phones are increasingly being linked with other services, such as banking and agricultural pricing information dissemination. Table 3 presents our examination of the telecommunications sector, which scores a total of 68 points on our scoring system.

PHARMACEUTICALS

Pharmaceutical regulations and regulatory bodies are present in all countries, but Vietnam, which has a pharmaceutical law but no institutional arrangements for effective regulation. The sector is typically characterised by multiple manufacturers, including significant numbers of multinational corporations. Zambia is an exception however, where the state has 70-90 percent of market share and there are no multinationals. In Sri Lanka, while manufacturers are competitive, a SoE is dominant in the supply of pharmaceuticals. Data on the poor's access to pharmaceuticals is sparse, however, anecdotal evidence suggests that drugs constitute a major share of the household's expenditure. Table 4 presents details of the sector, which scores 68 in our ratings.

DOMESTIC FUEL

Type of domestic fuel used varies by country, however, in general the use of fuel wood and charcoal seem to be prevalent in rural areas in all countries. While India, Indonesia, Philippines, Sri Lanka and Vietnam have evolved markets in petroleum fuel products, Zambia and Ghana's petroleum markets are still in their infancy. As fuel wood production and supply is not typically organised into a formal market, analysis of this sector presents challenges in terms of data availability. In India, Philippines, Vietnam and Sri Lanka, SoEs command a significant share of the domestic market in petroleum products. Even in these countries, where the urban and semi-urban population has access to petroleum fuel products, the majority of the population is rural and dependent on biomass fuel products. Table 5 presents an overview of the domestic fuel sector, which scores a total of 48.

PASSENGER TRANSPORT

While transport sector regulations are in force in all countries, there are no regulatory bodies that oversee passenger transport in Ghana, Indonesia, Philippines, and Vietnam. Road transport is the popular mode in all countries, except Indonesia, which has an evolved air transport sector due to its geographic situation as an archipelago nation. In Ghana, Philippines, Sri Lanka, and Vietnam, where there are private sector participants, SoEs continue to play a key role in the passenger transport sector. Anti-competitive practices prevail in the Ghanaian passenger transport sector, which is influenced by powerful private operators' unions that control service stations and in essence restrict market entry. Unlike in developed countries, the use of passenger transport in developing countries signals lower income. Hence, this sector has high impact on the poor, who spend a significant proportion of their income on transportation services. Table 6 presents the sector overview. The passenger transport sector scores 63 in our scoring system.

STAPLE FOOD

Rice is one of the primary staple crops in the countries examined. A common trait of the staple food sector is that production is generally by smallholder farmers who sell to secondary markets or private traders. Although data for the input side (seeds, fertiliser, chemicals etc.) are available from national sources, actual production statistics will be difficult to obtain since producers are small scale and often purchase inputs from informal sources. Table 7 shows information about the sector, which scored 56 in our analysis.

Table 1 summarises the scores of the sectors and countries, which forms the basis of our final recommendation of the two sectors and four countries for the CREW project.

Table 1: Sector/Country Scorecard

	Electricity	Telecom.	Pharm.	Domestic Fuel	Passenger Transport	Staple Food	TOTAL
Ghana	6	10	10	6	8	7	**47**
India	9	11	11	9	10	10	**60**
Indonesia	9	11	11	7	10	8	**56**
Philippines	10	10	10	8	9	9	**56**
Sri Lanka	8	9	9	5	9	7	**47**
Vietnam	8	8	8	6	8	8	**46**
Zambia	7	9	9	7	9	7	**48**
TOTAL	**57**	**67**	**68**	**48**	**63**	**56**	

Based on the assessment summarised in Table 1 and presented in more detail in subsequent tables, the pharmaceutical sector is the highest scorer, followed by telecommunications. As telecommunications is a significant growth sector and often a major success story of liberalisation in several developing countries, a large volume of studies have focused on analysing this sector. While there is value added in analysing this sector with the methodology proposed for the CREW project, if the CREW project would like to consider an alternative sector for analysis, the next highest scoring sector is the passenger transport sector. Hence, our recommendation of sectors for CREW is: pharmaceuticals, telecommunications, and passenger transport—in that order.

Finally, from our shortlist of seven countries, Zambia and Ghana are the two African countries recommended for selection for the CREW project. Among the Asian countries—India, Indonesia, Philippines, Sri Lanka, and Vietnam—based on our sector scoring system, India, Indonesia, and Philippines are the highest scoring over all sectors. However, if we focus only on the shortlisted sectors—pharmaceuticals, telecommunications, and passenger transport—India and Indonesia are the top performers regardless of any combination of the two sectors selected from this shortlist of sectors. Hence, our final recommended countries for the CREW project are: Ghana, India, Indonesia, and Zambia.

Table 2: Electricity Sector Overview and Scoring

Ghana	India	Indonesia	Philippines	Sri Lanka	Vietnam	Zambia	Total
REGULATORY FRAMEWORK/ SIGNS OF REFORM [Scale: 0—No sector regulation or policy; 1—Sector policy; 2—Sector policy & sector regulatory law; 3—Sector policy, regulation and Enforcement Agency; 4—Additional signs of reform]							
1	3	3	3	3	3	3	19
• National Energy Policy, 2009 • Public Utilities Regulatory Commission, 1997	• National Electricity Policy, '05 • Electricity Act, '03 • Rural Electrification Policy, '06 • Electricity Regulatory Commissions Act '98 • Central Electricity Regulatory Commissions & State Electricity Regulatory Commissions	• Electric Power Law, 2009 • Regulation on Electricity Supply and Utilisation, 2005 • Electricity market Supervisory Body	• Electric Power Industry Reform Act, 2001 • Energy Regulatory Commission	• Electricity Reform Act No 28; 2002 • Electricity Act, No. 20; 2009 • Public Utilities Commission Act; 2002	• Electricity Law, 2004 • Electricity Regulatory Authority of Vietnam established in 2005	• Electricity Act Chap 433, 1995 • National Energy policy, 1994 (NEP1194) • Energy Regulation Act, 1995 (amended in 2003) • Energy Regulation Board	
NATURE OF MARKET [Scale: 1—Primarily Monopoly (SoE or otherwise) or no organised market; 2—Large player(s) with some private sector firms; 3—Competitive with active consumer organisations]							
2	2	2	2	1	1	1	11
• The Volta River Authority (VRA), a SoE, main producer and buyer of electricity, as well as operator of transmission system. In southern part of country electricity supply being handled by Electricity Company of Ghana (ECG). • GOG created Ghana Grid Company to provide fair and open access to transmission	• Vertically integrated SEBs. The reform model adopted by a number of states resulted in the restructuring of some of the SEBs, leading to separation of the generation, transmission and distribution segments, and their corporatisation. • Central and state sector dominate electricity	• In 1994, when State-owned electric utility PT PLN was converted to a government-owned limited liability company. Unbundling of PLN's Java, Bali and Madura generation, distribution and transmission assets. Generation assets were unbundled into two wholly owned subsidiaries of PLN: PJB and Indonesia	• Since 2001, break-up and eventual privatization of SoEs. National Power Corporation's assets organised into two state holding companies: the National Transmission Corporation (TransCo), and the Power Sector Assets and Liabilities Management Corporation, which assumed control of	• Ceylon Electricity Board (CEB) and the Lanka Electricity Company Pvt. Ltd (LECO) are state-owned monopolies. CEB is legally the monopoly for transmission, monopoly for more than 85 percent of distribution and owns about 75 percent of the installed capacity of generation. Balance	• EVN is the SoE engaged in the generation, transmission and distribution of electricity in Vietnam. Two other firms operate in the electricity generation segment, viz., (i) Petro Vietnam and (ii) Vietnam National Coal and Minerals Industry Group.	• The key player in generation and distribution is the parastatal entity ZESCO, a vertically integrated SoE. The Electricity Act (the "Act") removed ZESCO's statutory monopoly over the industry. As a result of this legislation, other entities are now permitted by law to participate in the ESI.	

Ghana	India	Indonesia	Philippines	Sri Lanka	Vietnam	Zambia	Total
grid. As a result, half of all new power projects being built by independent power producers (IPP) raising their share from 19 percent in 2000 to 31 percent of total power generation capacity in the country by 2013.	generation with 39 percent and 45 percent shares respectively. In contrast, private sector contributes only 18.74 percent of all grid connected capacity. The Power Grid Corporation of India Ltd the central transmission utility, is the largest transmission company in India. Similarly, in distribution, the SEBs own nearly 95 percent of the distribution network. Privatisation in the distribution segment is limited to a few states.	Power. The distribution unit was separated into four distribution entities (East, West and Central Java, and Jakarta). Apart from sharing the generation business with the IPPs and cooperatives, PLN is the sole buyer and seller of electricity in the power market, currently purchasing approximately 80 percent of the power produced by the IPPs. Outside Java, Bali and Madura, restructuring is taking place through the decentralisation of PLN's assets.	NPC's power plants. Government was also required to sell its equity stake in the Manila Electric Company (Meralco), the country's largest electricity distribution company. By 2007, 10 of 23 hydro and coal-fired thermal plants had been privatized, amounting to some 43 percent of the privatisation target of 70 percent of the overall NPC's assets that would signal open access and retail competition.	distribution is the responsibility of LECO whereas the remaining 25 percent of installed generation capacity is IPP owned. LECO is a state owned private company established in 1984. IPPs and small hydro developers entered the industry in the mid-1990s when the government decided to open the generation sector to private investors.		ZESCO has a monopoly over the generation of power in the country, although the Government has put in place policy to encourage more players in the electricity sector.	
DATA AVAILABILITY [Scale: 1—Aggregate Data available; 2—Micro-level HH and Enterprise Data available; 3—Relevant Pre/Post Reform Data]							
2	**3**	**3**	**3**	**2**	**2**	**2**	**17**
• Enterprise survey – 07 • LSMS Survey -- 87, 88, 91,98 • WDI Time series on national production and consumption	• Enterprise survey -- 02, 06 • LSMS Survey -- 97 • Energy Statistics, 2012 from Central Statistics Office • WDI Time series on national production and consumption	• Enterprise survey -- 03, 09 • Household Surveys: IFLS1 and IFLS2 – 93,97 • IndoHH2--00 • WDI Time series on national production and consumption	• Enterprise survey -- 03, 09 • Consumer Financial Survey—09 • Family Income & Expenditure Survey – 97,00,03,06,12 • WDI Time series on national production and consumption	• Enterprise survey -- 04, 11 • HH Income & Expenditure Survey – 02,05,06/07,09/10 • WDI Time series on national production and consumption	• Enterprise survey -- 05, 09 • LSMS Survey -- 92; 97; 02; 04 • Vietnam HH Living Standards Survey – 02;04 • WDI Time series on national production and consumption	• Enterprise survey -- 02 & 07 • HH survey, 07 • HH Income & Expenditure survey – 91 • Living Conditions Monitoring Survey-- 96 • WDI Time series on national production and consumption	

Ghana	India	Indonesia	Philippines	Sri Lanka	Vietnam	Zambia	Total
IMPACT ON THE POOR [Scale: 1—Relatively low impact on the very poor; 2—Relatively high impact on the very poor]							
1	1	1	2	2	2	1	10
• Electrification rate -- 60.5 percent • Population w/o electricity – 9.4million	• Electrification rate – 75 percent • Population w/o electricity – 288.8million • 94 percent of the 404 million that do not have access to electricity live in rural areas, where electrification rate is 50 percent.	• Electrification rate -- 64.5 percent • Population w/o electricity – 81.6million	• Electrification rate – 89.7 percent • Population w/o electricity – 9.5million	• Electrification rate -- 76.6 percent • Population w/o electricity -- 4.8million	• Electrification rate -- 97.6 percent • Population w/o electricity -- 2.1million	• Electrification rate -- 18.8 percent • Population w/o electricity -- 10.5million	

SOURCE: Compilation from various online sources and scoring by Nathan Associates Team.

Table 3: Telecommunications Sector Overview and Scoring

Ghana	India	Indonesia	Philippines	Sri Lanka	Vietnam	Zambia	Total
REGULATORY FRAMEWORK/ SIGNS OF REFORM [Scale: 0—No sector regulation or policy; 1—Sector policy; 2—Sector policy & sector regulatory law; 3—Sector policy, regulation and Enforcement Agency; 4—Additional signs of reform]							
3	3	3	3	2	2	3	19
• National Communications Authority Act, 1996 (Act 524) • Ghana National Telecom Policy of 2005 - NTP-05 • National Communications Authority	• National Telecom Policy 1994 • Cable Television Network Act 1995 • New Telecom Policy 1999 • Broadband Policy 2004 • National Telecom Policy 2012 • Telecom Regulatory Authority Of India Act, 1997 • Telecom Regulatory Authority of India	• Telecommunications Act No. 5 of 1964 • Telecommunications Act No. 3 of 1989 • Telecommunications Act No. 36 of 1999 • Indonesian Telecommunications Regulatory Authority (BRTI)	• Public Telecommunications Policy Act of 1995 (Republic Act No. 7925). • Republic Act No. 3846 • Republic Act No. 6849 • National Telecommunications Commission (NTC)	• Telecommunications Act, No. 25 of 1991 • Telecommunications (Amendment) Act, No. 27 of 1996 • Telecommunications Regulatory Commission of Sri Lanka	• Guiding Ordinance of Posts & Telecommunications, 2002 • Gov. Decree on Telecommunications, 2004 • Gov. e-transaction Law, 2005 • Gov. Decree on Digital signature (2006) • Gov. IT Law (2006) • Gov. Telecommunications Act (Nov. 2009) • Gov. Radio Frequency Act (Nov. 2009)	• Telecommunications Act of 1994 • Radio Communications Act of 1994 • Independent Broadcasting Act of 2002 • The Postal Services Act • The ICT Act – 2009 • The ECT Act – 2009 • SI35 ICT (fees) Regulations • Zambia Information and Communications Technology Authority	
NATURE OF MARKET [Scale: 1—Primarily Monopoly (SoE or otherwise) or no organized market; 2—Large player(s) with some private sector firms; 3—Competitive with active consumer organisations]							
3	3	3	2	3	2	2	17
• One of the most vibrant telecom markets in SSA. Led the way in market liberalisation in SSA by privatising Ghana Telecom (GT) as early as 1996. • Major mobile market players--MTN, Vodafone, Tigo, Airtel, Globacom. • Vodafone and Airtel are	• Pvt, Bharti, Vodafone, Reliance, Idea, Tata, etc. are major players in the wireless market. Public sector undertakings (BSNL & MTNL) in the wireless market less than 13 percent. • BSNL holds 66 percent of broadband market share	• SoE-Telkomsel has retained a market share of 60 percent followed by Indosat (partly state owned) with 21 percent and XL Axiata at 19 percent. • Other competitors include Hutchinson Telcom's 3 network, Axis Telecom Indonesia and other	• Philippine Long Distance & Telephone Company (PLDT) was a private monopoly until reforms starting in 1987. Though there are other players in the market after reform, PLDT still holds half of the estimated number of telephone subscribers as of 2011.	• Mobile industry competitive with five operators (Dialog, Mobitel, Etisalat, Airtel and Hutch) competing for a total addressable population of 21.7 million. • Sri Lanka's mobile market had reached over 19 million subscribers by mid-	• Competition only introduced in 2003 when two SoEs (Viettel and VP Telecom) received licenses to compete with national monopoly, Vietnam Posts & Telecommunications Corp (VNPT) • Market shares of fixed telephone service	• 70 percent of SoE, Zamtel's equity was liquidated only in 2011, nearly 15 years after privatisation process began. Mobile Market Shares (April 2008) dominated by Zain (76 percent), followed by MTN (17 percent) and CellZ (7 percent)	

Ghana	India	Indonesia	Philippines	Sri Lanka	Vietnam	Zambia	Total
the main fixed line operators. • Mobile market penetration rate was over 95 percent in 2012; internet penetration was 36 percent; and landline penetration rate was 1 percent. • Mobile voice market approaching saturation, but 3G broadband is a growing market.	• Cellular telephony fastest growing segment telecom industry. Mobile subscriber base average annual growth of nearly 64 percent during 2000-2012. Tariff reduction and decline in handset costs has helped. • Fixed line segment's subscriber declined by 7 percent during 2012 YOY.	smaller players • In terms of fixed line services, Telkom remains the main provider with 8 million fixed lines in use or 99 percent of the total market.	Other players include Innove, Bayantel, Digitel, other LECS. • Smart, Globe, and Digitel Mobile Phil hold major market shares of Cellular Mobile Telephone (CMTS) Subscribers, followed by others.	2012, for a mobile penetration of 91 percent. • Fixed broadband penetration (as a percentage of population) was still less than 2 percent in early 2012. • Fixed land line subscription stagnant. Market share dominated by STL.	providers dominated by VNPT (67.995) and Viettel (22.31 percent). • More than 5 market players in mobile phone led by Viettel, Vinaphone, and MobiFone (both of which are controlled by VNPT). • Market shares of Internet service providers (according to subscribers accessing via wired system) also dominated by VNPT.	• Internet Market Shares dominated by Zamnet and Zamtel, both covering more than one-third of the market each, followed by others such as Africonnect, CopperNet, Microlink, etc.	
DATA AVAILABILITY [Scale: 1—Aggregate Data available; 2—Micro-level HH and Enterprise Data available; 3—Relevant Pre/Post Reform Data]							
2	**3**	**3**	**3**	**2**	**2**	**2**	**17**
• Enterprise survey – 07 • LSMS Survey -- 87, 88, 91,98 • National Communications Authority has data (e.g. Subscriber Information, Market Share, Tariffs, etc.)	• Enterprise survey -- 02, 06 • LSMS Survey -- 97 • Energy Statistics, 2012 from Central Statistics Office • Financial Data available in Min. of Communication & IT. • MICIT Annual reports also have data.	• Enterprise survey -- 03, 09 • Household Surveys: IFLS1 and IFLS2 – 93,97 • IndoHH2--00 • Telecommunication Industry Report, Indonesia	• Enterprise survey -- 03, 09 • Consumer Financial Survey—09 • Family Income & Expenditure Survey – 97,00,03,06,12 • National Telecommunications Commission has relevant data	• Enterprise survey -- 04, 11 • HH Income & Expenditure Survey – 02,05,06/07,09/10 • Telecommunications Regulatory Commission of Sri Lanka has data	• Enterprise survey -- 05, 09 • LSMS Survey -- 92; 97; 02; 04 • Vietnam HH Living Standards Survey – 02;04 • Data are available with MIC.	• Enterprise survey -- 02 & 07 • HH survey, 07 • HH Income & Expenditure survey – 91 • Living Conditions Monitoring Survey-- 96 • Status on the Data Collection and Dissemination of ICT Statistics	
IMPACT ON THE POOR [Scale: 1—Relatively low impact on the very poor; 2—Relatively high impact on the very poor]							
2	**2**	**2**	**2**	**2**	**2**	**2**	**14**
• High market penetration of mobile	• Teledensity improved from under 4 percent	• In 2010, 50 percent of users spent less than	• Cellular Mobile Telephone Subscribers	• Mobile Subscribers as at Dec 2012: 20,324,070,	• 30,802,752 Internet users as of	• Teledensity of over 80 percent including	

Ghana	India	Indonesia	Philippines	Sri Lanka	Vietnam	Zambia	Total
phones of over 93 percent in 2012 • Total Cellular/Mobile Voice Subscriber Base in Ghana as at December, 2012 stood at 25,618,427.	in 2001 to around 76 percent by 2012. • Cellular segment playing an important role in the rural and semi urban areas where teledensity is lowest (e.g. mobile banking) • Share of rural subscribers has increased to 37.80 percent in December 2012.	US$$5 per month on mobile phone credit compared to 18 percent in 2005 (Nielson). • Tele-density has reached 76.48 percent including mobile and fixed landlines.	density: 95.20 percent of total population	representing over 90 percent. • Fixed access telephone subscribers stagnant.	February/2012, 34.0 percent of the population, according to Vietnam Internet Center (VNNIC). • Vietnam's mobile market stood at an estimated 130 million subscribers in early 2012, for a 144 percent penetration.	fixed and mobile lines.	

SOURCE: Compilation from various online sources and scoring by Nathan Associates Team.

Table 4: Pharmaceuticals Sector Overview and Scoring

Ghana	India	Indonesia	Philippines	Sri Lanka	Vietnam	Zambia	Total
REGULATORY FRAMEWORK/ SIGNS OF REFORM [Scale: 0—No sector regulation or policy; 1—Sector policy; 2—Sector policy & sector regulatory law; 3—Sector policy, regulation and Enforcement Agency; 4—Additional signs of reform]							
3	3	3	3	3	1	3	19
• Ghana National Drug Policy 2004 • Pharmacy Council Ghana	• Draft National Health Policy 2009 • Drugs &Cosmetics Act, 1940 • Draft National Pharmaceutical Pricing Policy of 2011 • The Central Drugs Standard Control Organisation • National Pharmaceutical Pricing Authority (NPPA) • National Rural Health Mission • Jan Aushadhi	• Health Law No 36/2009 • Badan POM (the National Agency of Drug and Food Control)	• Republic Act No. 5921: (Act regulating the Practice of Pharmacy) • Generics Act, 1988 • Bureau of Food and Drugs (BFAD) • Universally Accessible Cheaper and Quality Medicines Act	• National Medicinal Drug Policy for Sri Lanka • Cosmetics, Devices and Drugs (CDD) Act, No. 27 of 1980 • Drug Regulatory Authority • Senaka Bibile's Pharmaceutical Reforms	• Pharmaceutical Law 1997, Enacted 2005	• Pharmacy and Poisons Act 1941 • Pharmaceutical Regulatory Authority • Zambia Drugs Enforcement Commission	
NATURE OF MARKET [Scale: 1—Primarily Monopoly (SoE or otherwise) or no organised market; 2—Large player(s) with some private sector firms; 3—Competitive with active consumer organisations]							
3	3	3	3	2	3	2	19
• In 2005, 34 domestic manufacturers held 37 percent of market share. No MNC pharmaceutical companies currently manufacturing medicines locally. • Major players include Ayrton Drugs Manufacturing Company, Danadams Pharmaceutical Industry (Ghana) Ltd,.	• There are over 20,000 registered drug manufacturers in India. Most of the players in the market are small-to-medium enterprises; 250 of the largest companies control 70 percent of the Indian market. Multinationals represent 35 percent of the market	• Of over 200 registered manufacturers, 80 percent domestic and constitutes 70 percent of the overall market. 7 of top 10 companies are local, with Kalbe Pharma at 14 percent of the market. Top 3 global drug producers Pfizer, Bayer and GSK collectively hold 8 percent of market. SoEs play a key role in	• The Food and Drug Administration's records show that there are 284 drug manufacturers, dominated by multi-national brand originator giants and numerous local generics/branded generics producers. Domestic manufacturers control approximately 50	• In total, there are more than 300 manufacturers. The State Pharmaceuticals Corporation of Sri Lanka (SPC) is the sole supplier of pharmaceuticals to all institutions administered by the Ministry of Health. At the same time it is the largest supplier to the private sector, with a 30	• More than 200 foreign pharmaceutical companies are registered in Vietnam, making up 90 percent of the country's market share Vietnam currently has 18 pharmaceutical producers manufacturing to GMP standards, of which 10 are Vietnamese-owned and the rest are foreign-	• State is a major player (70-90 percent). There are 6 local manufacturers with and only a minority has basic GMP compliance. Multinationals do not operate. Major importer of pharmaceutical products - there 50 companies6 that engage in the	

Ghana	India	Indonesia	Philippines	Sri Lanka	Vietnam	Zambia	Total
Ernest Chemists Ltd, Kinapharma, LaGray Chemical Company, Phytoriker.		generics and vaccine production through Kimia Pharma, Indofarma and Bio Farma.	percent of the market share.	percent market share.	controlled.	business of importing drugs into the country, but largest 6 control 80 percent of volume.	
DATA AVAILABILITY [Scale: 1—Aggregate Data available; 2—Micro-level HH and Enterprise Data available; 3—Relevant Pre/Post Reform Data]							
2	**3**	**3**	**3**	**2**	**2**	**2**	**17**
• Enterprise survey – 07 • LSMS Survey -- 87, 88, 91,98 • WHO Country Pharmaceutical Profile	• Enterprise survey -- 02, 06 • LSMS Survey -- 97 • Government agencies such as the Central Drugs Standard Control Organisation and the National Pharmaceutical Pricing Authority (NPPA) hosts relevant data • National Institute of Nutrition has data on drug consumption.	• Enterprise survey -- 03, 09 • Household Surveys: IFLS1 and IFLS2 – 93,97 • IndoHH2--00 • WHO Country Pharmaceutical Profile	• Enterprise survey -- 03, 09 • Consumer Financial Survey—09 • Family Income & Expenditure Survey – 97,00,03,06,12 • WHO Country Pharmaceutical Profile • WHO Philippines HH Survey on Medicines, 09 • Dangerous Drug Board National HH Survey – 04, 08	• Enterprise survey -- 04, 11 • HH Income & Expenditure Survey – 02,05,06/07,09/10 • WHO Country Pharmaceutical Profile	• Enterprise survey -- 05, 09 • LSMS Surveys -- 92; 97; 02; 04 • Vietnam HH Living Standards Survey – 02;04	• Enterprise survey -- 02 & 07 • HH survey, 07 • HH Income & Expenditure survey – 91 • Living Conditions Monitoring Survey-- 96	
IMPACT ON THE POOR [Scale: 1—Relatively low impact on the very poor; 2—Relatively high impact on the very poor]							
2	**2**	**2**	**1**	**2**	**2**	**2**	**13**
• Significant proportion of income of poor households spent on drugs.	• Rural market makes up 17-18 percent of the country's domestic market. • The poor are reportedly victims to counterfeit drugs	• Significant proportion of income of poor households spent on drugs.	• Price of pharmaceuticals is among the highest in Asia • 60 percent of the population has no access even to basic drugs.	• Significant proportion of income of poor households spent on drugs.	• Significant proportion of income of poor households spent on drugs.	• Significant proportion of income of poor households spent on drugs.	

SOURCE: Compilation from various online sources and scoring by Nathan Associates Team.

Table 5: Domestic Fuel Sector Overview and Scoring

Ghana	India	Indonesia	Philippines	Sri Lanka	Vietnam	Zambia	Total
REGULATORY FRAMEWORK/ SIGNS OF REFORM [Scale: 0—No sector regulation or policy; 1—Sector policy; 2—Sector policy & sector regulatory law; 3—Sector policy, regulation and Enforcement Agency; 4—Additional signs of reform]							
2	3	1	1	1	2	3	13
• Petroleum Exploration and Production Law of 1984 (PNDCL 84) • GNPC Law (PNDCL 64) (1983) • Petroleum Income Tax Law (PNDCL 188) (1986) • Ghana Petroleum Regulatory Authority Bill	• Petroleum and Natural Gas Regulatory Board Act, 2006 • Petroleum and Natural Gas Regulatory Board	• Oil and Gas Law No. 22 of 2001 • The Commission for the Supervision of Business Competition (KPPU) handed down two recent decisions to Indonesian petroleum players that signaled that it will investigate, prosecute & fine oil companies that are found to be involved in collusive tendering practices.	• Republic Act No. 8479 Oil Deregulation Act, 1998	• Petroleum Resources Act No. 26 of 2003 • Public Utilities Commission of Sri Lanka (PUCSL) does not have authority over certain sectors, including the liquefied petroleum gas.	• Petroleum Law of 1993 • Petroleum Decree of 2000	• Energy Regulation (Amendment) Act No. 23 of 2003; • Energy Regulation Board	
NATURE OF MARKET [Scale: 1—Primarily Monopoly (SoE or otherwise) or no organised market; 2—Large player(s) with some private sector firms; 3—Competitive with active consumer organisations]							
1	2	2	2	1	1	1	10
• About 86 percent of household dependent on biomass fuels. Woodfuels account for 78 percent of all primary energy consumption—predominant source of household energy, and small industries. • Main participants in woodfuel trade are producers, transporters, merchants (intermediaries and dealers), retailers and consumers. • Half of woodfuel supply	• Hydrocarbons account for the majority of India's energy use. Together, coal and oil represent about two-thirds of total energy use. Combustible renewables and waste, including firewood & dengue, constitute about one fourth of energy use. Firewood used by more than 800 million Indian households for	• A significant player in the international oil and gas industry. World's 2nd largest exporter of LNG. • Most oil and gas production is carried out by foreign contractors, including Chevron, Pertamina, Petrochina, and ConocoPhillips under production sharing contracts arrangements. • Prior to the passage of the 2001 Oil and Gas Law, SoE-Pertamina was the only business player. Still dominates the sector &	• Petron Corporation, Pilipinas Shell Petroleum Corporation, and Chevron Philippines Inc. — the so called 'big three' in the oil industry — said to be too much controlling over distribution and setting of fuel prices. • Small- time oil companies are directly affected by changes of these companies. Because they are the sole distributors of oil	• Incumbent operators, such as the Ceylon Petroleum Corporation, continue to be shielded from the purview of regulatory principles. • State-owned LP gas suppliers, Litro and Laugfs, dominate market.	• Vietnam's oil sector is dominated by the state-owned Vietnam Oil & Gas Corporation (PetroVietnam), essentially both the operator and regulator in the industry. • Foreign companies typically negotiate directly with PetroVietnam for upstream licenses of major fields in Vietnam, and all awards must receive approval from the Oil and Gas	• Fuels used for cooking in households in Zambia are firewood, charcoal, kerosene, electricity, cow dung, and crop residues. • In 2007, wood fuel accounted for 83 per cent of total energy consumption. Households accounted for about 88 per cent of wood fuel consumption. • Charcoal is the main	

Ghana	India	Indonesia	Philippines	Sri Lanka	Vietnam	Zambia	Total
from Brong Ahafo region while 79 percent of total supply comes from savannah zone. • No organised commercial supplier of woodfuel. • Recent oil field discovered but petroleum industry in infancy.	cooking. • Largest player in oil production is SoE-Oil and Natural Gas Corporation (ONGC), which accounted for about three-quarters of India's oil production in 2009-2010. • IndianOil and its subsidiary (CPCL) account for over 48 percent petroleum products market share, 34.8 percent national refining capacity and 71 percent downstream sector pipelines capacity. Also owns & operates 10 of 21 refineries. • Role of private companies increasing. The largest private actor in the oil sector is Reliance industries	remains in essence the sole distributor of gas and subsidised fuel products. Pertamina also owns and operates 8 of the country's 9 oil refineries.	supplies, small companies are retailers rather than competitors. • SoE- Philippine National Oil Company remains the primary player in upstream oil market activities, although it frequently partners with foreign companies on its major projects.		Department of the Prime Minister. • There is competition among several gas producers in the upstream in Vietnam. However, competition is weak.	fuel for cooking in urban areas (80 percent). Kerosene is used by nearly all non-electrified households for lighting. • Upstream petroleum industry in infancy at exploration stage. No production has yet occurred. • Main players in the Zambian petroleum are three SoEs -- TAZAMA Pipelines Limited (a natural monopoly), Indeni Petroleum Refinery Limited, (the only refinery, thus monopoly) and Ndola Fuel Terminal, the only bulk storage facility.	
DATA AVAILABILITY [Scale: 1—Aggregate Data available; 2—Micro-level HH and Enterprise Data available; 3—Relevant Pre/Post Reform Data]							
2	3	3	3	2	2	2	17
• Enterprise survey – 07 • LSMS Survey -- 87, 88, 91,98 • Public Interest and Accountability Committee issues Reports on the Management of	• Enterprise survey -- 02, 06 • LSMS Survey – 97 • Ministry of Petroleum & Natural Gas. has a regular publication entitled, 'Basic Statistics on	• Enterprise survey -- 03, 09 • Household Surveys: IFLS1 and IFLS2 – 93,97 • IndoHH2--00 • KPPU covers annual reports discussing competition in several sectors, including the oil	• Enterprise survey -- 03, 09 • Consumer Financial Survey—09 • Family Income & Expenditure Survey – 97,00,03,06,12 • Energy Data Center	• Enterprise survey -- 04, 11 • HH Income & Expenditure Survey – 02,05,06/07,09/10 • Petroleum Resources Development Secretariat (PRDS)	• Enterprise survey -- 05, 09 • LSMS Survey -- 92; 97; 02; 04 • Vietnam HH Living Standards Survey – 02;04 • Petrovietnam has	• Enterprise survey -- 02 & 07 • HH Income & Expenditure survey –91; HH Survey--07 • Living Conditions Monitoring Survey—96, 98	

Ghana	India	Indonesia	Philippines	Sri Lanka	Vietnam	Zambia	Total
Petroleum Revenues.	Indian Petroleum &Natural Gas'	and gas sector.	central repository of petroleum, coal and geothermal energy data	maintains data in its online Data Management Centre	relevant statistics and General Statistics Office has fuel prices.	• The Zambia Central Statistics Office has relevant data	
IMPACT ON THE POOR [Scale: 1—Relatively low impact on the very poor; 2—Relatively high impact on the very poor]							
1	1	1	2	1	1	1	8
• Fuelwood use dominant in rural households for cooking and heating and use in small-scale processing activities, such as fish smoking, gari making, pito brewing, etc.	• Poorest rural households depend on biomass fuels. • In all the countries, the cost and availability of domestic fuel is highly correlated with all economic activities, with direct implications on prices of goods and services.	• Biomass, mostly wood, is the primary fuel for cooking and other purposes in rural areas. If biomass energy use were included in Indonesia's energy balance for the year 2000, it would represent over 70 percent of residential demand. With fuel prices remaining unaffordable for the poor along with the high transportation cost of diesel fuel to remote areas, biomass is considered the cheaper alternative by the poor.	• Oil prices constantly increased just within the first 10 years of the implementation of RA 8479 by more than 500 percent.	Energy for cooking accounts for 42.5 percent of the total energy, 90 percent derived from biomass and 10 percent from Kerosene and LPG.	• At least 54 percent of total energy consumption in Vietnam is from biomass energy, 76 percent of which is used for household cooking and the remaining 24 percent - for small industries. It is estimated that about 80 percent of households still use traditional cookstoves with low efficiency for daily cooking.	• Wood is used by more than 90 percent of the Zambian population (estimated at nearly 1.8m), amounting to around 4.0 MTOE (1999), mainly in rural households particularly to meet thermal energy needs for cooking, space heating, micro enterprise process heat provision and water heating throughout the year (2000 census preliminary report).	

SOURCE: Compilation from various online sources and scoring by Nathan Associates Team.

Table 6: Passenger Transport Sector Overview and Scoring

Ghana	India	Indonesia	Philippines	Sri Lanka	Vietnam	Zambia	Total
REGULATORY FRAMEWORK/ SIGNS OF REFORM [Scale: 0—No sector regulation or policy; 1—Sector policy; 2—Sector policy & sector regulatory law; 3—Sector policy, regulation and Enforcement Agency; 4—Additional signs of reform]							
2	3	2	2	3	2	3	17
• Ghana Highway Authority Act: Act 540 1997 • Omnibus Services Decree, 1972 • Road Traffic Act 2004	• Motor Vehicles Act, 1988 • Central Motor Vehicle Rules, 1989 • Various States' Motor Vehicles Act, 1989 • National Highways Act, 1956 and National highways Rules, 1957 • The National Highways Authority of India Act, 1988	• Law No. 14 Year 1992 on Road Traffic and Transportation • Government Regulation No. 41 Year 1993 on Road Transportation • Government Regulation No. 8 of 2011 on Multimodal Transport • Air transport anti-monopoly Act, 2004	• Transportation Policy Act of the Philippines • Republic Act No. 4136	• National Transportation Commission Act (No. 37 of 1991) • Sri Lanka Transport Board Act (No. 27 of 2005) • Fares Policy, 2002 • Motor Traffic Act	• Prime Ministerial Decision (PMD) 162/2002 • Law on Road Transportation 2008 • Law on Railways Transportation 2005 • Domestic Marine Transportation Law 2004 • Civil Aviation Law 2006 • Transport Sector Development Strategy (TSDS 2020)	• Roads and Road Traffic (Amendment) Act, 2002 • Road Transport and Safety Agency	
NATURE OF MARKET [Scale: 1—Primarily Monopoly (SoE or otherwise) or no organised market; 2—Large player(s) with some private sector firms; 3—Competitive with active consumer organisations]							
2	3	3	2	2	2	2	16
• GOG owns majority shares in public transport companies. Exercises dominant influence on market. E.g, depots to be sited and routes to be operated are mostly done at the instance of officialdom, sometimes without due consideration to the financial viability. • Metro Mass Transit System (MMT) is jointly	• Emergence of road sector as the predominant means of passenger travel (Accounts for 90 percent of total passenger transport activity in 2010). • Decline in share of railway transport. Air transport increasing means of inter-city transportation. • 53 state road transport	• As an archipelago country, air travel the most popular way of transport. Air transport liberalisation in 2004 has doubled the number of air passenger from 12 million in 2003 to 26 million in 2004 (World Bank, 2012). • Private company, Lion Air, captures more than 40 percent of domestic market share,	• Jeepney operators group themselves into cooperatives, a government-owned bus company established, and subsidisation of private bus operators. Also a metrorail. • The main line-haul mode in most Philippine provinces is the jeepney, providing corridor service in	• 61 percent of passenger transport is with buses. Nationalisation of buses in 1958 and formation of a State monopoly, Central Transport Board. However, politicisation and lack of clear fares policy led to reintroducing private sector. • However, quality improvement not visible. Regulation was	• Road transport most advanced in privatisation and handles about 60 percent of domestic passenger and cargo transports. • About 1050 enterprises registered in road transport business, of which 16 SoEs, 233 limited liability companies, 350 private companies, 450 joint stock companies, and	• Road transport covers the most extensive area &is the fastest and most reliable mode of transportation. • Following the Government's tax concessions on the import of passenger vehicles in 1994 and 1995, in particular buses, the supply of vehicles has drastically	

Ghana	India	Indonesia	Philippines	Sri Lanka	Vietnam	Zambia	Total
owned by the government and other key public companies of Ghana while the State Transport Company is wholly owned by the government. • Very powerful influence of the private operators' Owner and Driver Unions (Ghana Private Road Transport Union, the Ghana Co-operative Transport Association, Progressive Transport Owners Association and the Ghana National Transport Owners Association). Power exerted through control of terminals from which services are operated, restricting opportunities for independent operators.	undertakings operate city buses. Private bus associations also run city bus services across most cities	followed by Garuda Air with 23 percent of market share, Sriwijaya Air with 13 percent, Batavia Air with 11 percent.	urban and suburban.	minimal with permits for bus services issued on an individual basis with no pre-qualifications. No regulator until 1991. Although fares are not regulated by law, quasi-controls have existed to date. Fares policy introduced in 2002 to determine price based on inputs cost. No effective regulator.	very few foreign invested companies. Most of road transport companies are of small and medium scale, with about 50 vehicles on average. • Inland waterway transport is ranked second in domestic passenger and cargo transport, accounting for 25-30 percent of total domestic transported volume. Has 2 state corporations affiliated to the Ministry of Transport, one SoE affiliated to the Vietnam Inland Waterway Authority. In addition, there are about 230 cooperatives & hundreds of inland waterway transport enterprises in the country	improved. Complimentary to the tax concessions on motor vehicle imports the Government relaxed the control on rates and tariffs on passenger fares and freight transport rates to enable operators charge economic rates. This has made the sub-sector attractive to private investment. • RTSA viewed as weak enforcer; Quality of public transport is low. Reports of pirated taxis on the road. No set meter fees by distance for taxis.	
DATA AVAILABILITY [Scale: 1—Aggregate Data available; 2—Micro-level HH and Enterprise Data available; 3—Relevant Pre/Post Reform Data]							
2	3	3	3	2	2	2	17
• Enterprise survey – 07 • LSMS Survey -- 87, 88, 91,98 • The Vehicle Examination and Licensing Department of the, Ministry of Transport and Communications (MOTC) publishes half-yearly data on vehicles	• Enterprise survey -- 02, 06 • LSMS Survey – 97 • Ministry of Road, Transport & Highways has data on number of licensed passenger transport in the country. Transport Associations could also be good sources of	• Enterprise survey -- 03, 09 • Household Surveys: IFLS1 and IFLS2 – 93,97 • IndoHH2—00 • Statistics office has data on transportation	• Enterprise survey -- 03, 09 • Consumer Financial Survey—09 • Family Income & Expenditure Survey – 97,00,03,06,12 • Statistics Office has data on transportation	• Enterprise survey -- 04, 11 • HH Income & Expenditure Survey – 02,05,06/07,09/10 • National Atlas, Department of Surveys, Sri Lanka has data on transport modals	• Enterprise survey -- 05, 09 • LSMS Survey -- 92; 97; 02; 04 • Vietnam HH Living Standards Survey – 02;04 • Statistics Office has data on passenger transport by carrier, province, ownership,	• Enterprise survey -- 02 & 07 • HH Income & Expenditure survey –91; HH Survey--07 • Living Conditions Monitoring Survey—96, 98 •	

Ghana	India	Indonesia	Philippines	Sri Lanka	Vietnam	Zambia	Total
presented for the roadworthiness test	data.				etc.		
IMPACT ON THE POOR [Scale: 1—Relatively low impact on the very poor; 2—Relatively high impact on the very poor]							
2	1	2	2	2	2	2	13
• Individual households are estimated to be spending between c430 and c700 per day (US$1 and US$1.6) on public transport. Earlier estimates by Howe and Barwell (1987) indicate that urban households spend about 9 percent of their total monthly expenditures on transport.	• Although the rural road network is extensive, some 33 percent of India's villages do not have access to all-weather roads and remain cut off during the monsoon season.	• Unlike in developed countries, the use of passenger transport in developing countries is actually a reflection of failure to purchase own transport. Thus it is generally those who are poor that mostly use passenger transport across these countries, such that any competition reforms in the sector are more likely to have the most significant impact on the poor.	• Unlike in developed countries, the use of passenger transport in developing countries is actually a reflection of failure to purchase own transport. Thus it is generally those who are poor that mostly use passenger transport across these countries, such that any competition reforms in the sector are more likely to have the most significant impact on the poor.	• Estimated 10 m trips daily (99 percent on land) • 50 billion passenger kms per year, i.e. 65 percent of all travel; 10 million trips per day, i.e. 2 trips per household per day; 80 percent households use the bus at least 1 time per week;	• Unlike in developed countries, the use of passenger transport in developing countries is actually a reflection of failure to purchase own transport. Thus it is generally those who are poor that mostly use passenger transport across these countries, such that any competition reforms in the sector are more likely to have the most significant impact on the poor.	• Unlike in developed countries, the use of passenger transport in developing countries is actually a reflection of failure to purchase own transport. Thus it is generally those who are poor that mostly use passenger transport across these countries, such that any competition reforms in the sector are more likely to have the most significant impact on the poor.	

SOURCE: Compilation from various online sources and scoring by Nathan Associates Team.

Table 7: Staple Food Sector Overview and Scoring

Ghana	India	Indonesia	Philippines	Sri Lanka	Vietnam	Zambia	Total
REGULATORY FRAMEWORK/ SIGNS OF REFORM [Scale: 0—No sector regulation or policy; 1—Sector policy; 2—Sector policy & sector regulatory law; 3—Sector policy, regulation and Enforcement Agency; 4—Additional signs of reform]							
2	3	2	3	2	2	2	16
• Food and Agriculture Sector Development Policy, 2002 • National Rice Development Strategy	• Agriculture Price Policy 2010 • Agriculture Produce Marketing Regulation Act, 1964 • Agriculture Produce Marketing Committee (APMC) Act, 2003	• Food and Agricultural Import Regulations and Standards, 2013	• Sugar Regulatory Administration • Philippine Coconut Authority (PCA) • Fibre Development Authority	• Agricultural Products (Regulation) Ordinance, 1939	• National (draft) Rice Policy • Law on Environmental Protection, 1993 • Vietnam Food Association established under Decision No. 727/KDDN-QD dated November 13th, 1989	• National Agriculture Policy 2004-15 • National Agricultural Marketing Act, 1989 • CAADP Compact Zambia 2011 • Food Reserve Act, 2005	
NATURE OF MARKET [Scale: 1—Primarily Monopoly (SoE or otherwise) or no organised market; 2—Large player(s) with some private sector firms; 3—Competitive with active Consumer organisations]							
1	2	1	1	1	2	1	9
• Maize, rice, yams, cassava, and other roots staple crops. Ghana largely self-sufficient in staples except rice & wheat • Tamale market in the north, the only major supply market for rice for the whole country, while the other five wholesale markets can be classified as consumer markets. • Smallholder farmers are major producers.	• Rice and wheat are the main staple food (different geographical locations have different preference for rice and wheat in the country). • Food Corporation of India Ltd. is the SoE that supplies through the public distribution system. • A large number of private entities and companies also supply rice and wheat to the market.	• Rice, cassava, sweet potato, sago are staple crops. • State monopoly, BULOG (national logistic agency), is in charge of carrying out the state's current rice policies • Three main types of farming: smallholder farming (mostly rice), smallholder cash cropping, and about 1,800 large foreign-owned or privately owned estates, the latter two producing export crops	• Rice, maize are staple crops. • Net importer of rice. • Production mainly by smallholder farmers • Secondary markets or private traders bridge gap between production and wholesale marketing.	• Rice staple crop. • Imports of agricultural inputs and equipment, such as fertiliser and tractors liberalised in 1997.	• Rice is main staple crop, occupying 94 percent of arable land. • 2 SoEs, Vietnam Northern Food Corporation & Vietnam Southern Food Corporation dominate the supply of rice to the markets. • A few private companies are also present, but their share in the market is little.	• Maize, cassava, wheat are the main staple crops. • Prior to 1991, the agricultural economy was focused almost entirely on maize and was characterised by price fixing. Liberalisation of the economy, led to a free-market. • Roughly 2-3 percent of relatively commercialised smallholder farmers account for half or more of the total quantity of maize sold by the	

Ghana	India	Indonesia	Philippines	Sri Lanka	Vietnam	Zambia	Total
						smallholder sector	
DATA AVAILABILITY [Scale: 1—Aggregate Data available; 2—Micro-level HH and Enterprise Data available; 3—Relevant Pre/Post Reform Data]							
2	**3**	**3**	**3**	**2**	**2**	**2**	**17**
• Enterprise survey – 07 • LSMS Survey -- 87, 88, 91,98 • Living Standard Survey—05/06 • FAOSTAT for aggregate food consumption and production	• Enterprise survey -- 02, 06 • LSMS Survey – 97 • FAOSTAT for aggregate food consumption and production	• Enterprise survey -- 03, 09 • Household Surveys: IFLS1 and IFLS2 – 93,97 • IndoHH2—00 • FAOSTAT for aggregate food consumption and production	• Enterprise survey -- 03, 09 • Consumer Financial Survey—09 • Family Income & Expenditure Survey – 97,00,03,06,12 • Philippines Bureau of Agriculture Statistics • FAOSTAT for aggregate food consumption and production	• Enterprise survey -- 04, 11 • HH Income & Expenditure Survey – 02,05,06/07,09/10 • FAOSTAT for aggregate food consumption and production	• Enterprise survey -- 05, 09 • LSMS Survey -- 92; 97; 02; 04 • Vietnam HH Living Standards Survey – 02;04 • FAOSTAT for aggregate food consumption and production	• Enterprise survey -- 02 & 07 • HH Income & Expenditure survey –91; HH Survey--07 • Living Conditions Monitoring Survey—96, 98 • FAOSTAT for aggregate food consumption and production	
IMPACT ON THE POOR [Scale: 1—Relatively low impact on the very poor; 2—Relatively high impact on the very poor]							
2	**2**	**2**	**2**	**2**	**2**	**2**	**14**
• Employment in agriculture – 57 percent of total (2006, WDI) • Poor depend on agricultural staple crops	• Employment in agriculture – 51 percent of total (2011, WDI) • Poor depend on agricultural staple crops	• Employment in agriculture – 38 percent of total (2010, WDI) • Poor depend on agricultural staple crops	• Employment in agriculture – 35 percent of total (2009, WDI) • One-third of Filipino farmers depend on maize as their major source of livelihood.	• Employment in agriculture – 33 percent of total (2009, WDI) • Poor depend on agricultural staple crops	• Employment in agriculture – 52 percent of total (2006, WDI) • Poor depend on agricultural staple crops	• Employment in agriculture – 72 percent of total (2005, WDI) • Poor depend on agricultural staple crops	

SOURCE: Compilation from various online sources and scoring by Nathan Associates Team.

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Addendum

An earlier version of this background paper was presented at the first CREW Project Advisory Committee (PAC) meeting held on March 14, 2013 in Jaipur, India. At this PAC meeting, our rationale for the selection of CREW countries and sectors, and our recommendations were presented. This addendum recaps key discussions pertaining to the final selection of CREW countries and sectors at the PAC meeting.

Finalization of Sector Selection

Based on the selection criteria and our sector scoring system presented in this background paper, the two sectors recommended for CREW were: telecommunications and pharmaceuticals. The PAC members discussed the pros and cons of the two sectors extensively. Specifically, they expressed concerns about CREW's value added in analyzing the telecommunications sector, since a large volume of literature already exists that delves into the benefits of competition reform in the telecom sector. Thus, the next highest scoring sector—passenger transport—was considered a better alternative. This sector was deemed to be favorable because first, it is not as extensively studied as the telecommunications sector, for instance, and sector, the sector is unique enough in each of the four CREW countries to present heterogeneity in our analysis. Passenger transport was thus agreed upon as one of the sectors for CREW analysis.

Next, the discussion on pharmaceuticals as a choice of sectors for the CREW project was discussed. Pharmaceuticals covers a wide variety of drugs, ranging from basic over-the-counter medicines to those used for cosmetic surgery or other luxury drugs. Since one of the criteria for the CREW project is impact on the poor, it was felt that the pharmaceuticals was too broad to isolate the effect on the poor specifically since there is no data that distinguishes drugs used by the poor and those used by other income groups. A more appropriate sector, it was concluded, would be the staple food sector. As this sector primarily constitutes agricultural products in most developing countries, the poor are directly dependent on the staple food sector for their livelihoods. This sector will therefore be useful to understand the impact of competition reform flowing to the poorer rungs of society.

Specific product markets in both the passenger transport and staple food sectors will need to be carefully chosen for analysis in consequent phases of the CREW project.

Finalization of Country Selection

Based on our selection criteria presented in this background paper, our final set of recommended countries for CREW included: Ghana, Zambia, India, and Indonesia. At the PAC meeting, the discussion focused primarily on the choice of Indonesia. Our final selection of countries in Asia relied on the sector scorecard for the recommended sectors. Since the final

sectors chosen were passenger transport and staple food, we revisited the countries chosen for CREW. India is still the highest scoring country with the new choice of sectors. However, the scores for Indonesia and the Philippines are tied with a combined total score of 18 for passenger transport and staple food sectors. The choice between these two countries was made on the basis of implementation considerations. Since CUTS has a strong local partner in the Philippines but not in Indonesia, it was decided that the Philippines was better suited as a CREW project country. Hence, the final choice of CREW countries decided upon at the PAC meeting were: Ghana, India, Philippines, and Zambia.