

Krakowski, Michael

**Working Paper**

## Competition Policy Works: The Effect of Competition Policy on the Intensity of Competition - An International Cross-Country Comparison

HWWA Discussion Paper, No. 332

**Provided in Cooperation with:**

Hamburgisches Welt-Wirtschafts-Archiv (HWWA)

*Suggested Citation:* Krakowski, Michael (2005) : Competition Policy Works: The Effect of Competition Policy on the Intensity of Competition - An International Cross-Country Comparison, HWWA Discussion Paper, No. 332, Hamburg Institute of International Economics (HWWA), Hamburg

This Version is available at:

<https://hdl.handle.net/10419/19300>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*

# **Competition Policy Works: The Effect of Competition Policy on the Intensity of Competition – An International Cross- Country Comparison**

**Michael Krakowski**

HWWA DISCUSSION PAPER

**332**

Hamburgisches Welt-Wirtschafts-Archiv (HWWA)  
Hamburg Institute of International Economics

**2005**

ISSN 1616-4814

Hamburgisches Welt-Wirtschafts-Archiv (HWWA)  
Hamburg Institute of International Economics  
Neuer Jungfernstieg 21 - 20347 Hamburg, Germany  
Telefon: 040/428 34 355  
Telefax: 040/428 34 451  
e-mail: [hwwa@hwwa.de](mailto:hwwa@hwwa.de)  
Internet: <http://www.hwwa.de>

The HWWA is a member of:

- Wissenschaftsgemeinschaft Gottfried Wilhelm Leibniz (WGL)
- Arbeitsgemeinschaft deutscher wirtschaftswissenschaftlicher Forschungsinstitute (ARGE)
- Association d'Instituts Européens de Conjoncture Economique (AIECE)

# **HWWA Discussion Paper**

## **Competition Policy Works: The Effect of Competition Policy on the Intensity of Competition – An International Cross-Country Comparison**

**Michael Krakowski \***

HWWA Discussion Paper 332

<http://www.hwwa.de>

Hamburg Institute of International Economics (HWWA)  
Neuer Jungfernstieg 21 - 20347 Hamburg, Germany  
e-mail: [hwwa@hwwa.de](mailto:hwwa@hwwa.de)

\* Hamburg Institute of International Economics (HWWA), Hamburg

This Version: September, 2005

Edited by the Research Programme Trade & Development  
Head: Dr. Katharina Michaelowa

## **Competition Policy Works: The Effect of Competition Policy on the Intensity of Competition – An International Cross-Country Comparison**

### **ABSTRACT**

This paper explores the relationship between competition policy, experience of the application of competition policy, the intensity of local competition and the standard of living. Perception data from the World Economic Forum is used to measure the intensity of local competition. Richer and larger countries in general introduce competition policy earlier than smaller and poorer countries, and industrialized countries earlier than Latin American, African, transition and Asian countries, in this order. A regression analysis for a sample of 101 countries reveals that experience and overall government effectiveness explain a substantial part of the perception of the effectiveness of antitrust policy. During the first years of (new) competition legislation the effectiveness of application improves rapidly, whereas very old competition agencies make little further improvement of their application performance after a certain time. The effectiveness of antitrust policy has a significant influence on the intensity of local competition. The size of the economy also has a significant impact on the intensity of local competition, whereas external protection does not. These results indicate that competition legislation and experience of the application of competition legislation have a large impact on the level of competition in an economy, whereas the influence of external protection is not clear. In countries with a high intensity of local competition the standard of living is higher than in countries with a low intensity of local competition.

**Keywords:** Competition Policy, Effectiveness of legal instruments

**JEL classification:** L40, K21

Address for correspondence:

Dr. Michael Krakowski  
Hamburgisches Welt-Wirtschafts-Archiv (HWWA)  
Neuer Jungfernstieg 21  
20347 Hamburg  
Phone: +49-40-42834-413  
Fax: +49-40-42834-451

## 1. Introduction

In its 1997 World Investment Report, UNCTAD formulated the objectives of competition policy in the following terms: "The main objective of competition laws is to preserve and promote competition as a means to ensure the efficient allocation of resources in an economy, resulting in the best possible choice of quality, the lowest prices and adequate supplies for consumers."<sup>1</sup> It is a matter of impeding the loss of general well being caused by restrictive competition practices or by the abuse of market dominance. Competition policy aims to prevent either private or public actors from restricting competition. In this sense, competition policy is generally based on one or various laws that prohibit collusive activities, abuse of market dominance, as well as corporate mergers under certain legally defined circumstances. In general, a particular organization, called the *competition agency*, is established to apply the respective laws.

If restrictions to competition did not exist in an economy, one could also do without corresponding legislation. Nevertheless, incentives for restrictive business practices are quite high if there is no risk of legal action against these practices and if market conditions permit them. Where competition legislation does not exist, the magnitude of possible restrictions depends on the obstacles that national and international competitors have to overcome in order to offer their products in the market.<sup>2</sup> In developing countries with reduced availability of national capital, it becomes especially important to be able to rely on investment and commercial competition from abroad. If competition from abroad is not restricted by commercial and investment barriers, the possibility of imposing restrictions on competition within the respective country is reduced. In this way, a policy promoting external commerce and foreign investment becomes a substantial complement to competition legislation.

Competition policy is part of what in German is called "Ordnungspolitik", that is to say the fundamental regulations necessary to make a market economy function satisfactorily. As with other elements of "Ordnungspolitik" it is difficult to measure the direct impact of these policies on outcome variables such as GDP per capita. It is not feasible to specify the quantitative impact of good competition policy on the standard of living in a given economy.

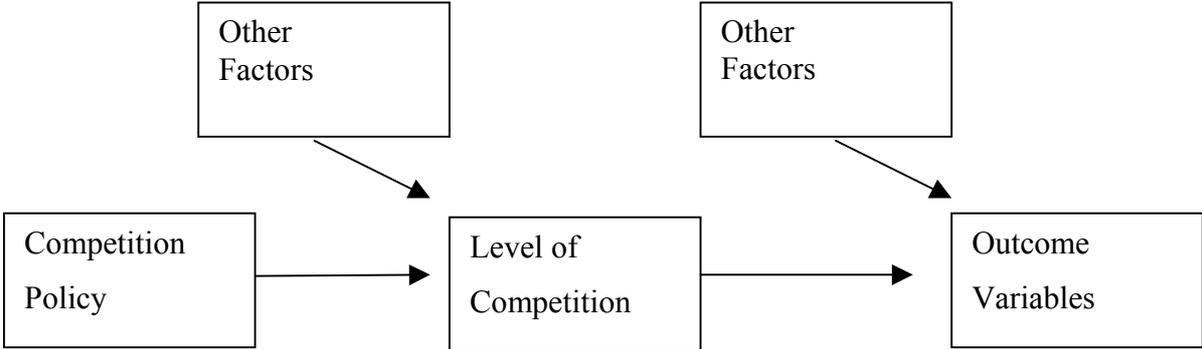
<sup>1</sup> UNCTAD (1997), p.190.

<sup>2</sup> According to Baumol's usage, markets that have no entry and exit restrictions are defined as "contestable" markets. Exit barriers are those hurdles that a firm must overcome when it decides to withdraw from a market. See also William Baumol (1982). "Completely contestable markets" are free from competition restrictions.

In the past, this lack of quantification hindered the introduction of competition policy in many countries; national decision makers could not be convinced of its usefulness, especially because the creation of national champions – large domestic enterprises dominating their respective markets - would be more difficult or impossible with this kind of policy, and many policy makers feel intuitively that national champions are good for growth. In this paper, perception data from the World Economic Forum are used in order to overcome the lack of data for competition intensity.<sup>3</sup>

From an analytical point of view the relationship between competition policy and outcome variables may be divided into two stages. The first stage is the relationship between competition policy and the level of competition within a given economy. The second stage is the relationship between the level of competition and outcome indicators such as GDP per capita, GDP growth, or other indicators measuring the performance of an economy. This point is illustrated in Figure 1.

Figure 1



Competition policy in the narrow sense consists of a law (competition law, antitrust law) and its application. In a broader sense, all policies designed to ensure the satisfactory functioning of a market economy - for example external tariffs, public procurement regulations, deregulation and so on - may be considered part of competition policy. Competition policy in the narrow sense cannot of course be expected to deliver good results if it is counteracted by competition policy in the broader sense.

This paper is organized as follows. In chapter 2 the historical sequence of the introduction of competition policy in different countries and regions is analysed. In chapter 3 the relationship

<sup>3</sup> The author is not aware of other literature using this approach.

between competition policy and the level of competition in a country is considered. Chapter 3.1 focuses on the relationship between the existence of competition legislation and its effective application, since the introduction of legislation does not always mean that it is applied effectively. Chapter 3.2 analyses the influence of competition legislation (and its effective application) on the level of competition in a country. In chapter 3.3 possible feedback loops from outcome variables to the introduction of competition policy are analysed in a simultaneous equation context. In chapter 4 the possible form of a typical learning curve for the application of competition legislation is derived from historical data in order to assess the time necessary for a competition agency to apply new legislation effectively.

## **2. The implementation of competition legislation around the world**

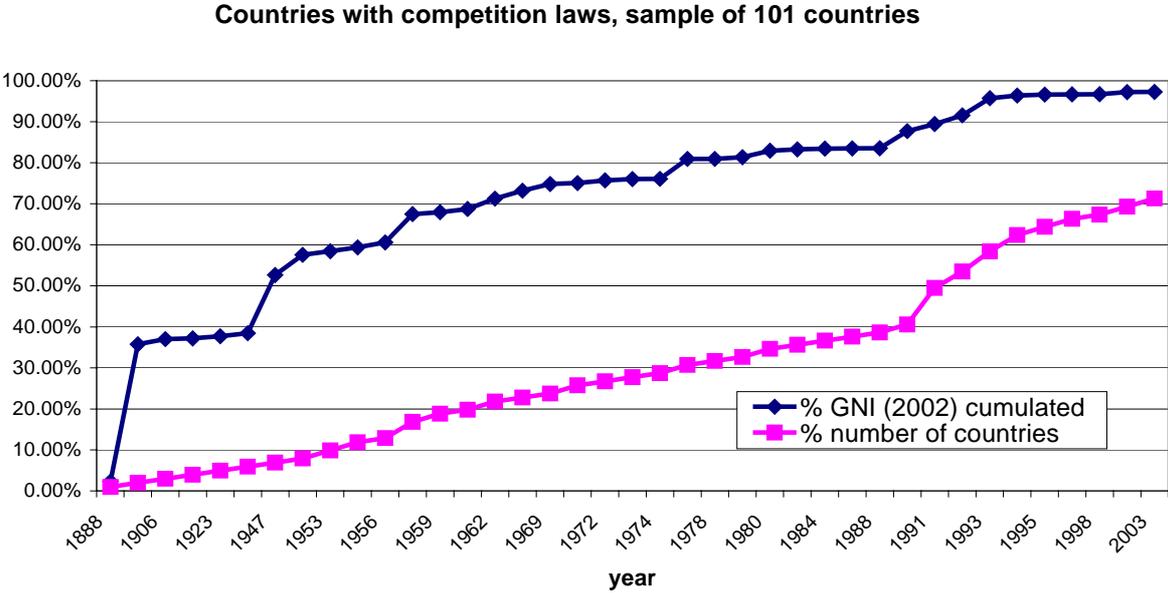
The analysis of historical data on the introduction of competition policy in different countries reveals that the richer countries introduced competition laws earlier than the poorer ones. Implementation of competition legislation has a relatively young history in developing countries. Most of the competition laws in these countries have been introduced since 1990. Because the richer countries introduced competition laws earlier than the poorer ones, a high percentage of world GNI (gross national income) now originates from countries with competition laws (see Chart 1). However, establishing a law does not necessarily imply that it will be followed, especially in a developing country environment. In recent decades there have been countless laws that never really left the filing cabinets, and hence had no influence on the real economic agenda. Fortunately this factor has been diminishing in many countries. The history of competition laws is therefore not identical to their implementation. The figures used here represent countries in which competition laws have been formally established. As such, however, they also include countries where laws have been introduced but are not applied efficiently. Nevertheless, the numbers at least reflect a growing interest in this kind of legislation. The high percentage of GDP from countries with competition laws in the early 20<sup>th</sup> century is due to the early introduction of competition legislation in the USA.

The introduction of competition policies in many developing countries is part of a general economic reform process that can be described with the key words *economic liberalization*, *deregulation*, and *privatisation*. Taken as a whole, these policies aim to improve the way the market functions. Such reforms entail a growing integration into the world economy. In many countries competition policy has thus been part of a broader process of economic reform, and at times it has also been a formal part of a whole package of reforms that resulted in debates

on whether or not to implement the package in its entirety. Consequently, the introduction of competition policy in a narrow sense (competition law) on the one hand and in a broader sense (overall market oriented policy) on the other were quite often parallel processes.

During the debate on the introduction of competition policy as part of an integral reform package, the substantial technical issues regarding the effective application of competition legislation were often neglected.<sup>4</sup> Hence, a high level of ignorance was revealed when it came to apply competition policy in the economy. This may help to explain why during the first years after the introduction of competition legislation the impact of the new policy in the economy often is weak; the newly established competition agencies begin their learning process only after the introduction of the respective legislation and often do not have personnel experienced in the application of this type of legislation at their disposal. For policy makers it is quite important to know what kind of learning curve may be expected for the application of competition policy. This point is explored further in chapter 4.

Chart 1: Year of introduction of competition laws and GNI of countries with competition laws, sample of 101 countries



Source of Data: UNCTAD, World Investment Report 1997, figures for years after 1996 updated with national data.

The data in Chart 1 seem to indicate that larger and richer countries introduce competition laws earlier than smaller and poorer countries. And as competition legislation is a typical part

<sup>4</sup> See Krakowski (2001) for an analysis of the relevant processes in Latin America.

of “Ordnungspolitik” in market economies, it also seems plausible that it was introduced in transition economies later than in the industrialized countries. Furthermore, given that policy implementation in developing countries is influenced by the recommendations of multilateral development banks and especially by regional banks and the regional institutions of the UN system, regional differences in the introduction of competition legislation may be expected. Regression analysis (see Table 1, independent variable YCL, years of competition legislation) shows that this is indeed the case and that regional differences are significant even if size (measured by Gross National Income in Purchasing Power Parities, GNIPPP) and development (measured by GNI per capita in Purchasing Power Parities, GNIPCPPP) are taken into account: richer and larger countries generally introduce competition policy earlier than smaller and poorer countries, and industrialized countries earlier than Latin American (LA), African (AF), transition (TR) and Asian countries (AS), in this order. It is well known that the relatively wealthy Asian countries were quite late to introduce competition policy and for many years favoured a policy of national champions and a degree of government intervention in the markets. This explains the regression results in the case of the Asian (non-transition) economies.

Table 1: Regressions for the introduction of competition policy

Independent variable	Dependent Variable: YCL
Constant	-22.68740 (-0.824181)
LOG(GNIPCPPP)	6.313274** (2.413922)
GNIPPP	5.63E-12*** (3.988593)
AS	-25.30444*** (-3.061527)
AF	-18.38645* (-1.853814)
TR	-25.23378*** (-3.964267)
LA	-18.24254* (-1.959917)
Included observations	100
Adjusted R-squared	0.486495
Durbin-Watson stat	2.062272
F-statistic	16.63213

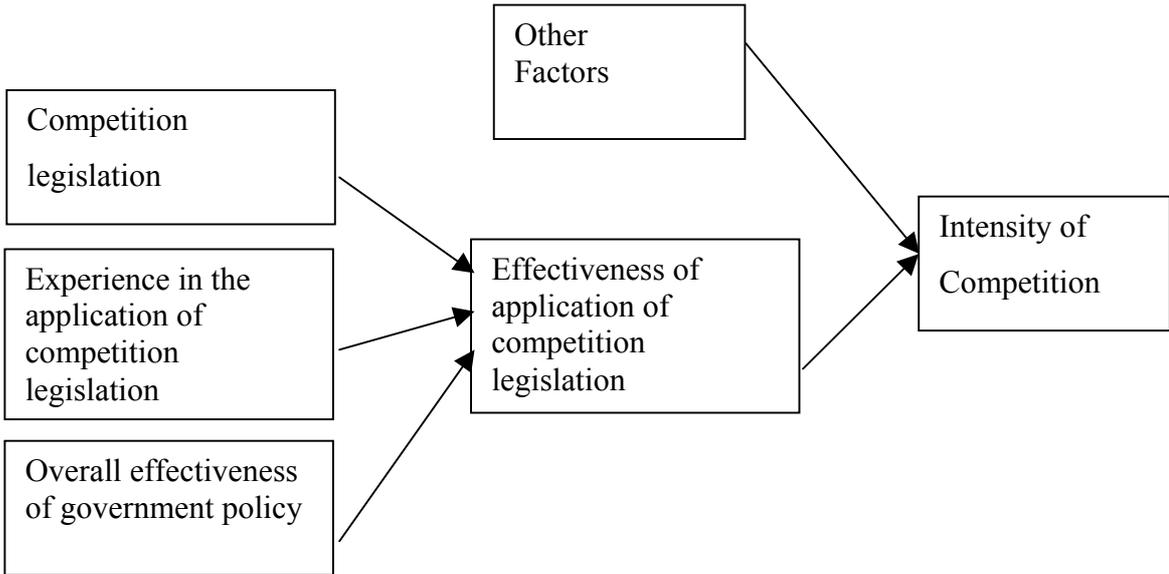
\*\*\* significant at 1% level; \*\* significant at 5% level; \* significant at 10% level, t-Statistics in parenthesis  
White Heteroskedasticity-Consistent Standard Errors

**3. The relationship between competition policy and the level of competition**

In this section, the relationship between competition policy and the level of competition (stage one in Figure 1) is analysed in more detail. Competition legislation influences the level of competition if a degree of effective application exists. In order to assess the effectiveness of competition policy it is therefore necessary to differentiate between the existence of a law as such and the effectiveness of its application. As the application of competition policy is no easy task, it is assumed that the effectiveness of application of competition legislation increases with the experience of the respective competition authority. Furthermore, governments that in general apply policy efficiently may also be assumed to apply competition policy more efficiently than countries that have a bad track record in the application of policies.

The level of effectiveness in the application of competition legislation should therefore affect the intensity of competition in a given country. Other factors such as competition policy in a broader sense, regulatory policy or the level of external protection also are of importance of course. These elements are some of the “other factors” in Figure 2, which visualizes the relationship between competition legislation and the effectiveness of its application as well as the relationship between the effectiveness of application of competition legislation and the intensity of competition.

Figure 2



### 3.1. Determinants of the effectiveness of the application of competition policy

In a first step, a regression analysis of the influence of the existence of competition legislation, experience of the application of competition legislation, and the overall effectiveness of government policy on the effectiveness of application of competition legislation is undertaken (step 1 in Figure 2).

- The “existence of competition legislation in 2003” (CL03) is taken from the database on competition legislation.<sup>5</sup>
- For the measurement of “overall effectiveness of government policy” (GE) the Kaufmann-Kraay-Zoido-Lobatón dataset is used. They provide data for 160 countries on "Voice and Accountability", "Political Stability", "Government Effectiveness", "Regulatory Quality", "Rule of Law" and "Control of Corruption", derived from several surveys. (Kaufmann, Kraay, Zoido-Lobatón 2002, p. 8-9). The data is aggregated using an unobserved components model (Kaufmann, Kraay, Zoido-Lobatón 1999).
- For “Experience of the application competition policy”, a series of the years of application of competition legislation in the respective countries (YCL) is constructed. The information provided by UNCTAD (UNCTAD 1997) has been augmented by more recent national data.
- For the effectiveness of the application of competition policy (EAP), data from the World Economic Forum is used (World Economic Forum, 2004). The Forum asked business leaders if anti-monopoly policy in their respective country was lax and not effective in promoting competition or if it was effective and promoted competition. From the completed questionnaires the Forum constructed a perception index for the effectiveness of antitrust policy (EAP). The index is used here to measure the application of competition legislation in a given country. Data for 101 countries is available.

The relationship between the effectiveness of antitrust policy, overall governance efficiency and experience of application is thus given by the equation:

$$(1) EAP = \beta_0 + \beta_1 GE + \beta_2 \log(YCL) \quad \beta_1, \beta_2 > 0$$

A regression for a sample of 101 countries reveals that experience and overall government effectiveness indeed explain a substantial part of the perception of the effectiveness of

<sup>5</sup> See Annex 1 for details

antitrust policy (see Table 2). Both variables are highly significant and R-squared shows quite a high value. In order to determine the functional form of the influence of experience (YCL) on effectiveness of application (EAP), a regression including only the countries with competition legislation in place was estimated (independent variable EAPCL). The logarithmic form shows lower values for the Akaike info criterion and higher values for adjusted R-squared than a linear (or intermediate) relationship. Therefore, the logarithmic form is also used for the general relationship including the countries without competition legislation. From the governance indicators of Kaufmann's dataset the indicator for the level of government effectiveness (GE) is the most significant, which makes sense. Consequently only regressions using GE are shown here.

The index of perception of “effectiveness of application of antitrust policy (EAP)” shows positive values even in countries where no competition legislation exists. This may be explained by the fact that some countries nevertheless apply some kind of sectoral competition policy or indirect competition policy. In Bolivia, for example, there is a competition policy limited to the utilities sector. Nevertheless, the EAP indicator is strongly linked to the existence of a general competition policy in 2003 (CL03), thus showing that the perceptions of business leaders used for this index are not completely erroneous.

Table 2: Regressions for the effectiveness of application of competition policy

Independent variables	Dependent Variable EAP	Dependent Variable EAP	Dependent Variable EAPCL
Constant	3.681599*** (75.43285)	3.103226*** (24.34400)	3.028828*** (10.04829)
LOG(YCL)	0.074468*** (4.619604)		0.298270*** (2.715857)
GE	0.731024*** (14.03542)		0.662226*** (7.804218)
CL03		1.227760*** (7.315114)	
Included observations	102	102	69
Adjusted R-squared	0.777252	0.297755	0.775791
Durbin-Watson stat	2.017259	1.895437	1.877847
F-statistic	177.2135	43.82452	114.1841
Akaike info criterion	1.420491	2.559174	1.261352

\*\*\* significant at 1% level; \*\* significant at 5% level; \* significant at 10% level, t-Statistics in parenthesis White Heteroskedasticity-Consistent Standard Errors

### 3.2. Determinants of the intensity of competition

In order to measure the impact of the effective application of competition legislation on the level of competition (step 2 in Figure 2) an indicator for the level of competition must be found, since there is no direct measure of the overall level of competition in an economy. Here, business leaders' perceptions of the level of competition in their respective countries are used. The World Economic Forum asks if "Competition in the local market is limited and price-cutting is rare, (or) intense in most industries as market leadership changes over time" and constructs indices for the intensity of local competition (ILC) for 101 countries. As this is an index of perception, the usual caveat about the comparability of perceptions in different countries applies.

Following the description in Figure 2, the intensity of local competition (ILC), i.e. competition within a given country, should be influenced by the "effectiveness of application of antitrust policy (EAP)", as well as by other factors representing competition policy in a broader sense. One of the most relevant policies in this context is that regarding external protection. An economy with a high level of external protection limits the possible impact of international competition and facilitates restrictive practices within that country. Consequently, a possible indicator for competition policy in the broader sense is the lack of external protection (EXPRO), for example measured by low weighted mean tariffs (TAR)<sup>6</sup>, a high quota of imports of goods and services (IMP) or an index of perception of external trade protection, including non-tariff barriers and corruption at the borders (TRAPRO). It may be expected that the size of the economy as measured by gross national income in purchasing power parities (GNIPPP)<sup>7</sup> also influences the intensity of local competition, because border effects that restrain international competition exist even if there are no formal trade barriers. This reasoning results in the following equation for the explanation of the intensity of local competition:

$$(2) \text{ ILC} = \beta_0 + \beta_1 \text{ EAP} + \beta_2 \text{ GNIPPP} + \beta_3 (\text{EXPRO}) \quad \beta_1, \beta_2, \beta_3, >0$$

<sup>6</sup> Rodrik feels that average tariffs data is a good proxy for the overall level of external protection in an economy: "Simply put, tariff averages are a reasonable proxy for trade restrictions." (Rodrik 2000)

<sup>7</sup> Purchasing Power Parity is used in order to eliminate the effect of exchange rate movements.

Table 3: Regressions for the intensity of local competition

Independent variables	Dependent variable	Dependent variable	Dependent variable
	ILC	ILC	ILC
	(1)	(2)	(3)
Constant	2.574219*** (11.52665)	3.092518*** (10.45323)	2.741380*** (10.61674)
EAP	0.511489*** (10.98037)	0.454873*** (9.778873)	0.494032*** (9.869290)
GNIPPP	7.41E-14** (2.009809)	7.01E-14** (2.041893)	6.77E-14** (2.098076)
IMP	0.001873 (0.600454)		
TRAPRO		-0.063050 (-1.423767)	
TAR			-0.002177 (-0.234551)
Adjusted R-squared	0.636220	0.648446	0.647165
Durbin-Watson stat	1.974659	2.110339	2.026634
F-statistic	56.38223	60.63935	52.35710
Akaike info criterion	1.148917	0.997269	1.060853
Included observations	96	98	85

\*\*\* significant at 1% level; \*\* significant at 5% level; \* significant at 10% level, t-statistics in parenthesis, White Heteroskedasticity-Consistent Standard Errors

In the regressions of Table 4 the effectiveness of antitrust policy (EAP) shows a significant influence on the intensity of local competition. An increase in EAP of one point on a scale of 1 – 7 would roughly increase the intensity of local competition by half a point, again on a scale of 1 – 7, with GNIPPP and indicators of external protection held constant. The impact of the size of the economy on the intensity of local competition is significant at the 5% level, but not the indicators of external protection. These results indicate a large impact of competition legislation and experience in the application of competition legislation on the level of competition in an economy, whereas the influence of external protection is not significant in this context.

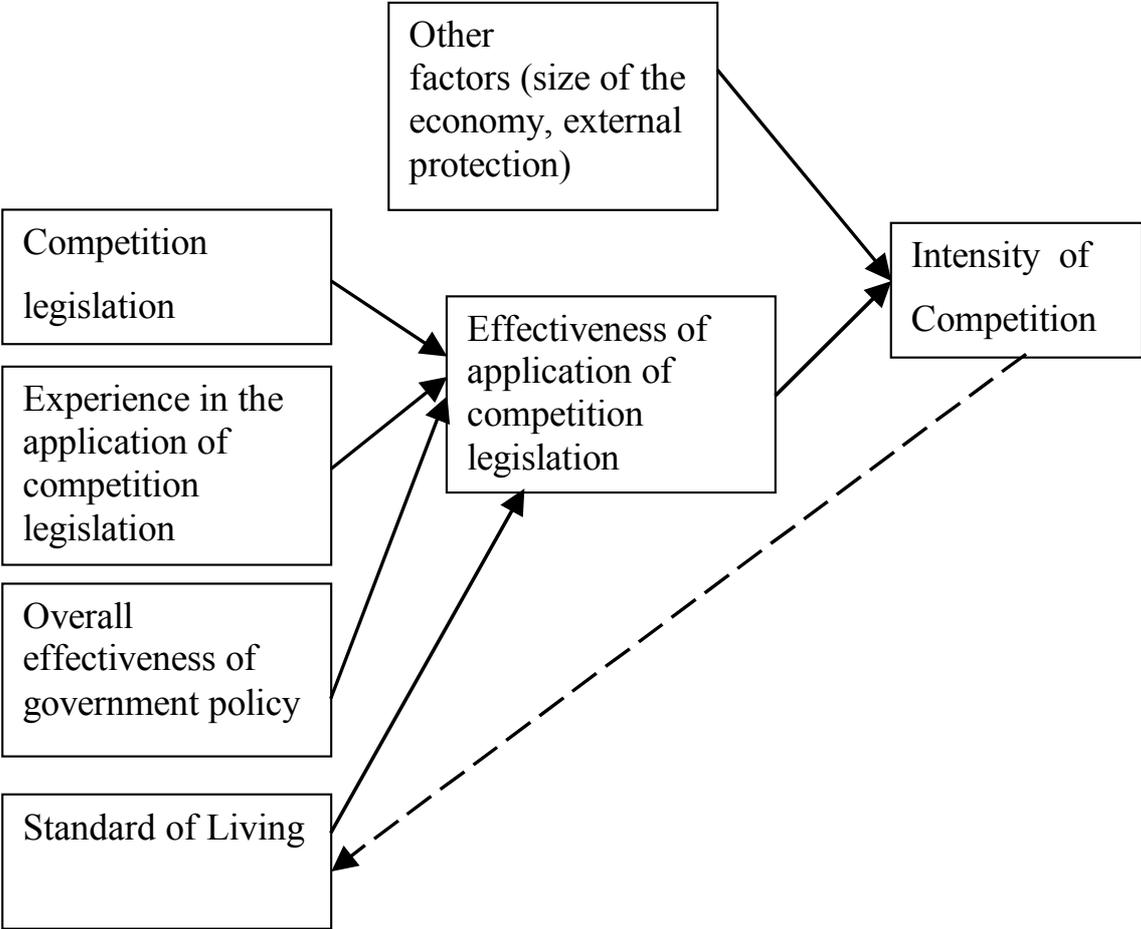
### 3.3. A simultaneous equation approach

As was pointed out in chapter 2, competition legislation was introduced in richer countries earlier than in poorer countries. The standard of living as measured by gross national income per capita in purchasing power parities in regression 1 had a significant influence on the number of years that competition policy in a given country is in place, which in turn had an impact on the effectiveness of application of competition policy. In Figure 3, the standard of

living is modelled as influencing the effectiveness of the application of competition legislation directly.

In general it is assumed that economies with higher levels of competition are richer than economies with lower levels of competition. Competition policy aims at increasing the level of competition and thus growth in the economy. Consequently, a feedback loop between the intensity of competition policy and the standard of living is to be expected: intensity of competition should correlate positively with the standard of living. This feedback loop is depicted in Figure 3 with a dotted line.

Figure 3: A simultaneous equation approach



Because of the feedback loop the equations (3) – (5) are part of a simultaneous equation system. In Table 4 the estimation outcome of the three stage least squares technique are shown.

$$(3) \text{ eap} = \alpha_0 + \alpha_1 \text{ ge} + \alpha_2 \text{ycl} + \alpha_3 \text{gnipcphp}$$

$$(4) \text{ ilc} = \beta_0 + \beta_1 \text{ eap} + \beta_2 \text{gnippp} + \beta_3 \text{tar}$$

$$(5) \text{ gnipcphp} = \gamma_0 + \gamma_1 \text{ ilc}$$

Table 4: Three-stage least squares regression

Independent variables	Dependent variable EAP	Dependent variable ILC	Dependent variable GNIPCPPP
Constant	3.87814*** (12.11)	2.680859 *** (12.25)	-78358.06*** (-7.50)
EAP		0.5236421 *** (10.55)	
GE	1.140156*** (2.86)		
GNIPPP		4.53e-14 ** (2.17)	
GNIPCPPP	-0.000043 (-0.96)		
ILC			18943.26*** (8.63)
TAR		-0.0080002 (-1.53)	
YCL	0.0108398*** (2.77)		
"R-sq"	0.7679	0.6527	0.0564
Included observations	85	85	85

\*\*\* significant at 1% level; \*\* significant at 5% level; \* significant at 10% level, z-statistics in parenthesis,

These estimation results do not differ substantially from the single equation estimates in Tables 2 and 3. The influence of the general effectiveness of government policy (GE) and experience of competition policy (YCL) are still significant for the explanation of the effectiveness of the application of competition policy, whereas the newly introduced variable for the standard of living (GNIPCPPP) is not significant. Furthermore, the tariffs variable is not significant for the explanation of the intensity of local competition, as the single equation estimations had already shown. However, the intensity of local competition seems to be strongly correlated with the standard of living, i.e. economies with high levels of competition are richer than economies with low levels of competition. This may imply that there is evidence linking experience of competition policy to the intensity of local competition and the latter to the standard of living in a given country and that it is recommendable to introduce

competition policy in countries where this kind of policy does not yet exist in order to increase the standard of living for the population concerned.<sup>8</sup>.

#### **4. A learning curve for the application of competition policy**

One of the discussions about the introduction of competition legislation concerns the typical form of a competition agency's learning curve. Application of competition legislation is no easy and straightforward task and therefore agencies need to undergo a degree of learning by doing before they are able to apply new legislation effectively. In order to assess the form of a typical learning curve, only countries with competition legislation are considered and a regression on the years of competition legislation and the overall level of government effectiveness is estimated (regression in last row in Table 2). Several functional forms for the influence of experience of the application of competition legislation are estimated in order to determine the form of the relationship. As already mentioned, a logarithmic form turns out to fit the data best.

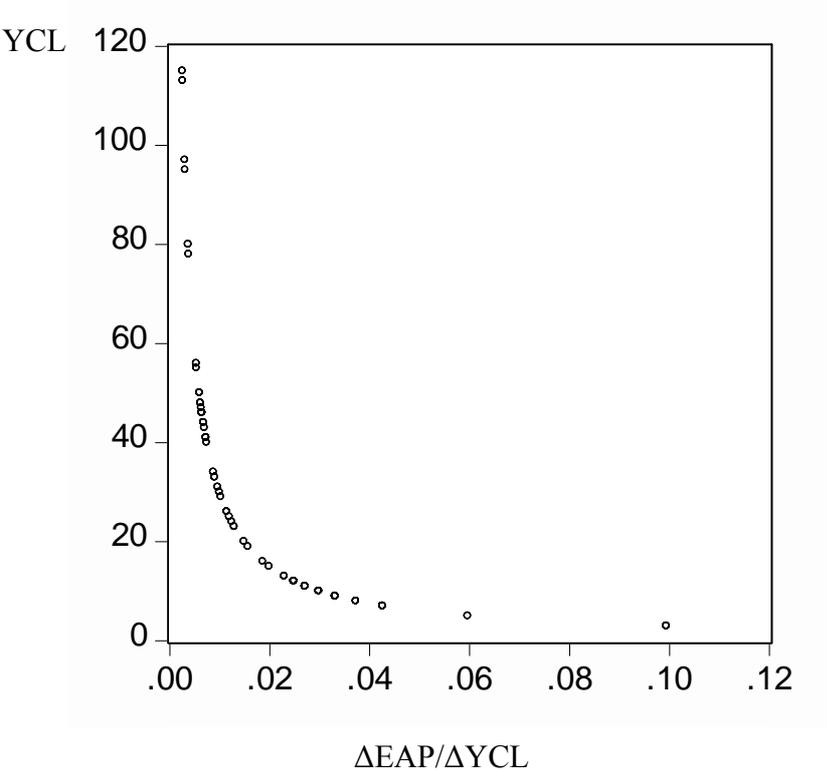
Differentiation of equation (1) gives

$$\Delta EAP/\Delta YCL = \beta_2/YCL,$$

where the incremental increase in the efficiency of application of competition legislation is the coefficient  $\beta_2$  divided by the years of application of the law. This relationship may be interpreted as the learning curve of competition agencies - as experience increases so too does the efficiency of application. Figure 4 depicts the estimated learning curve of competition agencies assuming constant overall government effectiveness: during the first years of applying (new) competition legislation, the effectiveness of application improves rapidly, whereas very old competition agencies make little further improvement in their application performance after a certain time. This seems to be a plausible result.

<sup>8</sup> In further investigations the influence of competition policy should be tested against a wider range of variables.

Figure 4: A learning curve for the application of competition legislation



This result indicates that after the introduction of competition legislation the effectiveness of its application increases rapidly. Consequently, governments deliberating over the introduction of competition legislation need not be apprehensive that the learning process of a new competition agency will not allow for tangible results in a foreseeable future, even if the total impact of new legislation on the intensity of competition will only be felt after a number of years.

**5. Conclusions**

- In general, richer and larger countries introduce competition policy earlier than smaller and poorer countries and industrialized countries earlier than Latin American, African, transition and Asian countries, in this order.
- A regression for a sample of 101 countries reveals that experience of the application of competition legislation and overall government effectiveness explain a substantial part of the perception of the effectiveness of antitrust policy.

- The effectiveness of antitrust policy is of significant influence on the intensity of local competition. The size of the economy also has a significant impact on the intensity of local competition, whereas external protection does not. These results indicate a large impact of competition legislation and experience of the application of competition legislation on the level of competition in an economy, whereas the influence of external protection is not significant.
- In countries with a high intensity of local competition the standard of living is higher than in countries with a low intensity of local competition. This implies that it is recommendable for countries that seek to increase their standard of living to introduce competition legislation, if this has not been done already.
- The estimation of a learning curve for the application of competition policy reveals that during the first years of (new) competition legislation the effectiveness of application improves rapidly, whereas very old competition agencies make little further improvement in their application performance after a certain time.

## **The Data**

### **Perceptions of the Effectiveness of Antitrust Policy and Competition**

**EAP:** Effectiveness of Antitrust Policy, Answer to the question "Anti-monopoly policy in your country is lax and not effective at promoting competition (1) ... effective and promotes competition (7)", year 2003

**ELC:** Extent of locally based Competitors, Answer to the question "Competition in the local market (1) comes primarily from imports, (7) comes primarily from local firms or subsidiaries of multinationals", year 2003

**EMD:** Extent of Market Dominance, Answer to the question "Market dominance by a few enterprises is (1) common in key industries (7) rare", year 2003

**ILC:** Intensity of Local Competition, Answer to the question "Competition in the local market is (1) limited and price-cutting is rare, (7) intense in most industries as market leadership changes over time", year 2003

Source of Data: World Economic Forum, Global Competitiveness Report 2003/2004, New York: Oxford Univ. Press, 2004

### **Macroeconomic indicators**

**GDPGR:** GDP, 1995 constant USD, growth 1998-2002

**GNI:** GNI, Atlas method (current US\$), year 2002

**GNIpc:** GNI per capita, GNI per capita, Atlas method (current US\$), year 2002

**GNIPPP:** GNI, Purchasing Power Parity, (current international \$) year 2002

**IMP:** Imports % of GDP, imports of goods and services (% of GDP), year 2002

**TAR:** weighted mean tariffs (year 2001 or 2002)

Source of Data: World Bank, World Development Indicators 2004

**TRAPRO:** Index of perception of external trade protection, year 2002, Heritage Foundation

### **Existence of Competition (Antitrust) Laws**

**Year:** Year of Competition Law

**CL96:** Competition Law in Place in 1996

**CL00:** Competition Law in Place in 2000

**CL03:** Competition Law in Place in 2003

**YCL:** Years competition law in place 2003

**YCLon:** Years competition law in place 2003, 0=0.01

Source of Data: UNCTAD, World Investment Report 1997, figures for 2000 and 2003 updated with national data.

### **Governance Indicators**

**COC:** Control of Corruption Indicator (Year 2002)

**GE:** Government Effectiveness Indicator (Year 2002)

**PS:** Political Stability Indicator (Year 2002)

**ROL:** Rule of Law Indicator (Year 2002)

**RQ:** Regulatory Quality Indicator (Year 2002)

**VA:** Voice and Accountability Indicator (Year 2002)

Source: Daniel Kaufmann, Aart Kraay, Massimo Mastruzzi, Governance Matters III: Governance Indicators for 1996-2002, World Bank, April 5, 2004

## **Country Classification**

**CL** denotes regressions including only countries with competition legislation

**AF:** African countries

**AS:** Asian countries

**IC:** Industrialized countries

**LA:** Latin American Countries

**TR:** Transition countries

## **Literature**

Daniel Kaufmann, Aart Kraay, Massimo Mastruzzi, Governance Matters III: Governance Indicators for 1996-2002, World Bank, April 5, 2004

Kaufmann, Daniel; Aart Kraay (2002), Growth without Governance, <http://www.worldbank.org/wbi/governance/pdf/growthgov.pdf>

Kaufmann, Daniel; Aart Kraay; Pablo Zoido-Lobaton (1999), Aggregating Governance Indicators, World Bank Research - Working Papers 2195

Kaufmann, Daniel; Aart Kraay; Pablo Zoido-Lobaton (2002a), Governance Matters II, Updated Indicators for 2000/01, The World Bank, Policy Research Working Paper 2772, February 2002

Krakowski, Michael, Política de Competencia en Latinoamérica: Una primera Apreciación, Un análisis comparativo legal e institucional de las políticas de competencia en Latinoamérica, Managua 2001: Proyecto MIFIC/GTZ

Rodrik, Dani: Comments on “Trade, Growth, and Poverty,” by D. Dollar and A. Kraay, October 2000

UNCTAD, World Investment Report 1997, Transnational corporations, Market Structure and Competition Policy, United Nations: 1997

World Economic Forum, Global Competitiveness Report 2003/2004, New York: Oxford Univ. Press, 2004