

German Working Papers in Law and Economics

Volume 2011

Paper 14

Measuring Judicial Performance (The Case of Egypt)

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Measuring Judicial Performance

The Case of Egypt

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02.05.2011

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Abstract¹

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Keywords

Court Performance, Technical efficiency, Resolution Rate, Egypt , First Instance Courts.

JEL Classification

K41, K42, H49, H50

¹ The author would like to thank Councilor Ahmed Zaki for his huge effort in facilitating the data collection process. In addition to all my colleagues at the Institute of Law and Economics at the University of Hamburg and the University of Marburg: Katharina Stepping, Matthias Dauner, Jerg Gutmann, David Boern, Agnes Strauß, Sheima Hanafy, Moamen Gouda and Florian Neumeier for their valuable comments and recommendations. Last but not least, the author would like to thank Professor Michael Funke for his excellent recommendations and guidance regarding the empirics of the paper. Finally my greatest gratitude goes to my supervisor Professor Stefan Voigt for his guidance, motivation and continuous support.

1. Introduction:

For over a decade problems of court delay and judicial performance has gained a lot of attention among scholars of law and economics. Different empirical studies aiming to assess court performance and identify its determinants started to emerge illustrating the problem within and across different countries (e.g. USA, Brazil, Spain, Singapore, India, Israel, Norway, Romania, Slovenia and Germany). However it must be said that this body of literature is still negligible regarding Middle Eastern and African countries in general and Arab countries in specific. This paper contributes to the existing literature on court performance by providing the first empirical study on court performance in Egypt, differentiating between different career level judges and case load nature.

Egypt is considered one of the most strategic and influential countries of the Middle East and North African (MENA) region² (See figure 1). In 2006 the Egyptian Ministry of Justice (MOJ) started launching its first judicial institutional reform, mainly focusing on First Instance Courts (FICs). This program can be considered its first judicial reform since the establishment of the national judicial system in 1952. Now and after more than 3 years of reform, it becomes important to ask: What are actually the main determinants of court output in Egypt? Did court performance improve after launching the reform program? In order to answer these questions, it might be useful to search for a suitable measure of judicial performance. Staats et al. (2005) identifies three broad dimensions of judicial performance: independence, efficiency and accessibility. Rosales-Lopez (2008), however points out that the evaluation of judicial performance encounters numerous obstacles. This can mainly be due to the complex nature of judicial structures and the scarcity and sometimes lack of information on basic judicial activity and the quality of judgments. Hence, it can be said that quantifying performance requires collecting data on judicial effectiveness, quality and efficiency. To offset this problem, most scholars usually choose “court output” or “court efficiency” to partially model court performance. The importance of differentiating between these latter concepts (output versus efficiency) is that some of the explanatory variables used to explain court performance e.g the number of judges might affect output but not necessarily the efficiency of courts: Few judges

² Due to its location in the African continent and the Middle East, its huge population (79 million), it is where all Middle East peace processes usually take place and moreover it owns the Suez Canal which plays a major role in facilitating world trade.

would probably solve few cases, but they can be very efficient anyhow. That is why a general analysis of court performance should better be divided in an analysis of court output and another one for court efficiency.

Figure 1: Egypt's strategic location as an important MENA country



Source: <http://www.worldatlas.com/webimage/countrys/africa/eg.htm>

In the general analysis of court performance, courts are usually treated as production units that use available inputs to produce certain output. Efforts have been done to clearly identify possible input and output variables to be able to quantitatively measure court output or efficiency. Posner (1985) assumes that the output of the judiciary depends among other things upon the number of Judges. Moreover, Kittelsen and Forsund (1992), Pedraja and Salinas (1995) measure court efficiency focusing mainly on the number of judges and other staff members as being the most important input factors. Previous studies analyzing the impact of judicial staffing on court output however are to a great extent mixed and hence inconclusive. Gabrys (1998) for example on the one hand proposes the expansion of the judiciary as a crucial factor to solve the problems of court delay in the U.S. Beenstock and Haitowsky (2004) on the other hand show that that the number of case disposition does not apparently depend on the number of judges. The authors explain that an increase in judicial staff might form an incentive for incumbent judges to decrease their productivity and hence offset additional resolved cases by the new judges. Dakolias (1999), comparing the clearance rate of Singapore with that of the United States, finds that while the US scored a clearance rate of about 98%

with having a relatively high number of judges per 100,000 capita, Singapore enjoys also one of the highest clearance rates (94%), employing the fewest judges per 100,000 capita. Applying the homoeconomicus principle one might consider improving the salary schemes of judges might form a main determinant of judicial performance. Buscaglia and Ulen (1997), however show that higher spending on justice does not necessarily improve judicial efficiency. This evidence is supported by Posner (2005) who explains that the nature of judicial careers is likely to be dominated by leisure and public recognition rather than income³. Accordingly, scholars⁴ and experts on judicial performance started to study the impact of other factors like organizational structure, judicial turnover, case load, promotions, public spending on justice, the qualifications of judges, the number of other staff members, available technology, the complexity of cases filed and available support units within courts on court performance. Schneider (2005) for example shows that judges' qualification and their career incentives directly influence their productivity. Rosales-Lopez (2008) analyzes the impact of court's size, workload, availability of Common Procedural Services (type of support units for judicial decision making) and judge's turnover on court performance. She explains that except for the latter variable all others have a significant positive effect on court's output. Buscaglia and Ulen (1997) and Murell (2001) on the one hand show that an increase in caseload curbs court output as it leads to a congestion effect. On the other hand Luskin and Luskin (1986) and Beenstock and Haitovsky (2004) controversially argue that higher case load lead to a high resolution rate, as judges become incentivized to finish more cases. Hence it can be said that two of the main common variables needed to model court performance or study court efficiency are case load (x_1) and the number of judges (x_2) per court, while there is still no agreed upon sign or significance regarding their impact on court output.

Following this introduction, section 2 of this paper first, briefly describes the institutional environment of the Egyptian judicial system by mainly focusing on FICs and Family Courts. Second, it gives a brief description of Egypt's judicial career system. Finally this section explains how the reform started in 2006/2007 and provides a brief analysis of the main reform processes that were implemented during the past 3 years. Section 3 contains an empirical analysis using a panel data model to test the impact of case load and the number of judges on court output. Section 4 consequently sheds more light on analyzing the impact of the 2007 reform program through testing changes in inefficiency level of the 22 courts during the last six years; conducting a

³ Judicial incomes tend to be lower than lawyers'. See: Posner, 2005: 1260.

⁴ Amongst others: Buscaglia and Ulen (1997), Buscaglia and Dakolias (1999), Dakolias (1999), Fix Fierro (2003), Schneider (2005), Yeung and Azevedo (2009), Mitsopoulos and Pelagidis (2007) and (2010), Rosales-Lopez (2008).

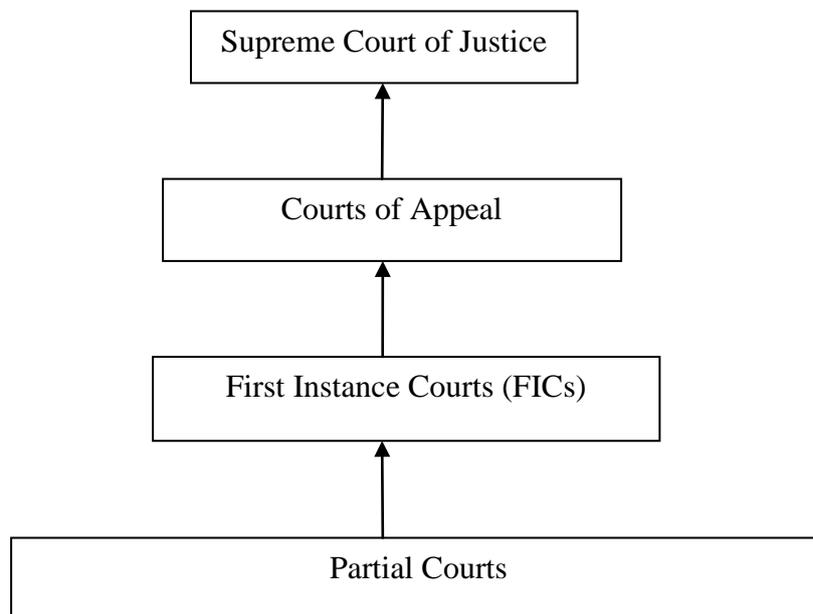
stochastic frontier analysis (SFA). Last but not least, section 5 concludes and proposes some policy recommendations.

2. The Institutional Setting of the Egyptian Judicial System

2.1 Courts of Justice

According to Egypt's 1971 constitution, the Egyptian judicial system is an independent branch of the government. Since the establishment of the State Council (Maglis-Al-Dawla) according to law No. 112 of 1988, Egypt has adopted a dual judicial system: the administrative and the ordinary judiciary. The administrative judiciary has the jurisdiction to decide on administrative disputes in which any governmental entity is involved, while the ordinary courts are responsible for settling the regular criminal and civil cases among any two parties. Courts are organized according to the law of judicial power of 1972 and its several amendments in a hierarchical order according to their respective power (See figure 2 below). The Supreme Court is on top of this rank, followed by the Courts of Appeal, the FICs or Courts of First Instance and finally the Partial Courts.

Figure 2: Hierarchical Order of the Egyptian Court System⁵



Source: MOJ, 2010

⁵ This hierarchical structure is not affected by the amendment of the Egyptian Constitution, regarding the abolishment of the emergency law that occurred during the 25th of January demonstration in Egypt. Cases regarding the emergency law were tackled in emergency courts, which do not have any functionality within the ordinary judicial system explained in this study.

There exists only one Supreme Court which is based in Cairo and has exclusive superior power over all other lower degree courts. However the Courts of Appeal are distributed within the capital of the different Egyptian governorates. Hence there exist eight Courts of Appeal which are located in Cairo, Alexandria, Tanta, Mansura, Ismailia, Beni Suef, Asyut and Qena. FICs are usually established in the capital of each Egyptian governorate. There used to be 22 main FICs, but due to the large expansion of the population in new emerging governorates, the number of FICs is going to be extended to 27 till 2011⁶. In the domain of each FIC, small Partial Courts are formed to take care of less complicated cases that can be easily solved by one single judge. In total there exist about 337 Partial Courts. Decisions of a lower level court might be appealed against, at one of the higher level courts. In order to file a case in FIC, the minimum value of the case should exceed 6,800\$ after the reform program (since 2007), as before that time the critical value was 1,700 \$, otherwise the case should be filed in a Partial Court (Mokhtar, 2010). Moreover there exist a number of specialized courts like Family Courts (handling personal affairs cases) that were established according to law 10 of 2004 and recently Economic Courts (handling commercial and economic cases), established under law 120 of 2008. The main reason of establishing a specialized Family Courts aside from having more specialized judges in one place is avoiding filing a family case in a partial court where it is tackled by a single judge. Moreover, the system wanted to encourage filing of family cases through offering the plaintiffs a court environment and system that differs from the one that is hosting criminals. Hence family courts have the main functionality of FICs and are currently run by three judges. Before these latter specialized types of courts were established, family as well as commercial cases were first filed in a regular Partial Court with only one judge. Hence the FICs now mainly manage civil and criminal cases, while family issues are tackled under the management of the so called Family Courts. However and despite the independence of Family Courts, their judicial staffing are still managed under the hierarchy of FICs. In other words, the available reports and data at the MOJ on the size of the judiciary of each FIC, still include the total sum of judges handling civil, criminal and family cases, which makes it very difficult to calculate productivity measures on judicial performance with respect to each case type before and after the establishment of specialized courts. Hence our analysis includes civil and criminal cases of each FIC in addition to the family cases handled in the domain of each FIC. The president of each FIC is also responsible for partial courts in the domain of his court.

⁶The five additional courts (North Sinai, South Sinai, Helwan, 6th of October and Red Sea) were parts of respective other larger courts (Ismailia, Suez, South Cairo, Giza, Qena). The main focus will be on the 22 First Instance Courts as most reports provided by the ministry of justice still include aggregated figures of the court to be able to compare the court output with previous years.

When assessing court output of each FIC at the end of each judicial year, the president of the court provides data on partial case resolution (partial courts output) as well as data on total case resolution (FIC output). In addition, the judicial staff member of the FIC is engaged in partial as well as total case resolutions.

2.2 The Judicial Employment System

According to Law 64 of 1972 and Law 35 of 1984, a judge should be an Egyptian citizen who is not less than 30 years for FICs and 38 years for the Courts of Appeal. Concerning the Judiciary of the Supreme Court, they should not be less than 43 years old (Law 142 of 2006 in Mourad, 2009). A judge could be of degree “Judge A”, “Judge B”, or just “J”, according to his level of experience and rank in the judicial career system. Hence, a judge of degree “J” is the lowest degree in the Egyptian judicial career system. Up to 75% of this group usually include new comer judges who have been serving as attorneys for a minimum of four years. Law School Staff are also allowed to join this group of judges when completing 9 years at their job and are obtaining a salary similar to that of a starting judge. A minimum of 25% are usually lawyers who have been practicing law for at least nine years amongst which are 4 years practice in front of Courts of Appeal. Judges of degree “B” are usually general attorneys of a superior level that have served as judge of degree “J” for a minimum of two years. However this group might also include lawyers who have been continuously practicing law for at least 12 years and Law Professors or Research Associates who have occupying this position for a minimum of five years. Last but not least, a judge of degree “A” is the one, who has occupied the position of degree “B” for at least three years in a FIC before. Moreover this group also include lawyers who have been practicing law for at least 20 years amongst which are 15 years practice in front of Courts of Appeal and finally Egyptian law professors who have acquired their title for at least two years (Mourad, 2009: 36-41). The president of a Partial court can be of degree “A” or “B”, based on his performance, while the president of the FIC is usually a judge of degree “A”. Accordingly, it can be expected that judges of degree “A” and “B” are superior level judges who are older and more experienced than their corresponding judges of degree “J” (MOJ, 2010).

A potential judge must be a formal law school graduate of one of the Egyptian universities, a graduate of Law and Sharia of El Azhar University or a law student of any other foreign university after completing the whole accreditation procedure in Egypt. Moreover, a judge

should enjoy a good reputation throughout his life time, lacking any previous sanctions or violations that can negatively affect his honour (Mourad, 2009)⁷. One of the main criteria of appointing the judiciary is their observed graduation grade. Moreover, it must be said that judges' children and relatives take advantage over other candidates when applying to join the judicial career system. A grade of at least good is currently required to apply for a judicial career job, however real life examples show that students with lower grades were sometimes preferred over students with higher grades without providing any interpretation for their evaluation criteria. Law school graduates are appointed as attorneys without any formal training at the beginning of the Egyptian judicial career system. However they are placed in a training program of 4 months before being nominated to serve as judges. Al-Eslambuly (2009: 58) states that for a law school student to enter the judicial career, he should first go through a probation phase, during which he attends intensive preparatory courses. Afterwards each student shall receive an evaluation and only those who perform well may be appointed as judges, the rest can be assigned some other judiciary related administrative jobs. There has been already a law drafted to support this idea in 2008. It concerned establishing a so called "Judicial Academy" where judicial candidates can attend a probation phase before being assigned a formal judicial position. It involves judicial training and additional qualifying courses to ensure high judicial quality among those who are going to occupy judicial positions. This law however is not being approved by the parliament yet.

2.3 The 2006/07 Judicial Reform

2.3.1 The main Reform Procedures

Egypt enjoys one of the oldest⁸ and most developed and influential judicial structures in the Middle East and North Africa. Most Arab countries depend on Egyptian judicial expertise when launching judicial reform or structural adjustment program. However the Egyptian system suffers from a number of organizational and institutional problems: judges complain to be surrounded with bad working conditions and random distribution of case load, while the greater part of the Egyptian society suffers from bad judicial services and court infrastructure. In 2005/2006 dissatisfaction from and within the whole judicial system highly escalated.

⁷Article 39, 46 in Law of Judicial Power, 1972: 18, 19

⁸The first modern judicial system in Egypt started in 1830. The Egyptian judicial system included in addition to Egyptian judges, also a number of French and English judges to ensure the fair treatment of foreign citizens in Egypt (Mixed Court System). In 1952, after the Egyptian revolution, the first Egyptian national judicial system was formed and foreign judges were eliminated.

More than 100.000 cases were pending in First Instance Courts (FICs) for more than two years, which made the need for judicial reform a crucial issue (MOJ, 2009).

In October 2006 Counsellor Mamduh Marei⁹ has launched a judicial reform program. He promoted a working environment compared to that of a firm with organizational hierarchical production units, work specialization and incentive schemes. The actual reform procedures started taking place since April 2007, mainly focusing on FICs. The MOJ considers the key to developing and achieving progress in the judicial system in Egypt requires building up efficient institutions for these courts and improving the quality of their judges, without losing sight regarding the rest of the judicial system. The idea behind focusing on FICs as a first attempt of the reform program stems from the fact that these courts are the first to receive public prosecutors that are to become judges and court presidents of degrees A and B after a while. Accordingly if they are best perceived and built up from the very beginning at this stage of their judicial career, they will be promoted as qualified efficient judicial councillors to the Courts of Appeal after completing their required phase in the FIC. In other words, they started building up stable roots or ground to maintain a solid structure for the whole system on a long term basis. The fundamental focus points of this program were mainly improving the performance of judicial decision making and the quality of court services mainly in Egyptian FICs. As a starting point the reform caused a sharp reduction in caseload in almost all FICs, due to the strict orders given by the MOJ to clear all older cases that have been pending for several years to the extent that they were almost forgotten (MOJ, 2010). Accordingly the available bulk of pending cases per court diminished. In general it can be said that the contribution of judicial reform in Egypt mainly focused on two core perspectives of the judicial system: Court and Judge.

- Court

The satisfaction of the citizens who demand court services as a symbol of justice within the county is one of the main aims of the reform program. Hence improving the court environment in which citizens and judges interact becomes a prerequisite for executing the work to be done at an efficient manner. Time and effort will be saved if the surrounding environment of the court enables an efficient up speeded case filing procedure and a prompt feedback concerning any case or trial information. Hence the whole judicial system experienced substantial improvements in court technology and infrastructure. In addition to improving the quality of court buildings and facilities, the computerization of FICs and Courts of Appeal observed special attention. In cooperating with the United Nation

⁹ Mr. Marei was the Egyptian Minister of Justice from 2006 till the Egyptian demonstration of 25.2.2011, as he is removed by the Egyptian demonstrators as part of the old system.

Development Program (UNDP) the Egyptian MOJ managed to complete the process of computerizing the case filing procedure in 63% FICs in Egypt (National Centre for Judicial Studies, 2009). These are the so called Extended Case Management Application projects (ECMA). In 1998, the first two FICs joined the program (North Cairo and Ismailia FIC); however the first participating court was Cairo Court of Appeal. Till 2009, twelve FICs were already using ECMA system and four FICs were still in the construction phase, leaving eleven courts to be included in the future (National Centre for Judicial Studies, 2010). Recently in 2009, the MOJ also raised the court filing fees in Partial as well as in FICs. These filing fees are the regular application and formal fees required to file a case in an Egyptian Court. This fact should also serve as a tool to reduce current filed cases per court or in other words it is used as a selection mechanism to filter out unserious cases. The MOJ 2009 performance reports state that one of the most important hinderers of resolutions is the non seriousness of the plaintiffs themselves. Citizens might file a case and hire a lawyer just to annoy another party or person and bring them or him to trial every now and then. Others might e.g welcome going to court before paying a debt back, as they know that the process is going to postpone his payback period and at the end the judge would just oblige him to pay the minimal court fees in addition to his debt. Court fees in Egypt are considered quite low, to the extent that people used to abuse the easy and cheap access to court services.

- Judge

Judges are usually the main and most important labour input in the case resolution process. The only qualification judges in Egypt usually have is the bachelor certificate; they obtain after studying four years at the law school. Only 16.7% of total judicial staff of FICs in Egypt enjoys a higher qualifying degree, like a certified diploma (9,6%), a master (6,1%) or a Ph.D (1%) (MOJ, 2010). In other words, the system lacks specialized skilled judges that have at least studied one major discipline. All judges are expected to be able to handle all types of cases (e.g. family, criminal, economic and civil). At earlier years and before the establishment of the Egyptian family courts (2004) and economic courts (2008), all family as well as economic cases were tackled within the regular framework of FIC that usually involve civil and criminal resolutions. Hence the structure of the system was not providing the required environment of specialization to improve the performance of judges through experience and knowledge accumulation. In light of the reform program, the MOJ gave more attention to judicial training and supported the concept of judicial specialization. In light of the reform program, seminars and training programs were offered to judges to

observe deeper judicial specialization, in addition to intensified foreign language (English, French) courses to enhance the language skills of judges. Moreover the MOJ has enhanced judicial research skills by offering rewards to participants that were able to write outstanding papers about the course topic they attended. An additional factor that might have helped also in improving judicial standards after the reform, could be the introduction of the so called “new judicial employment movement”. This criterion implied that judges shall only be assigned to courts near to their living area (not more than 60 minutes by car, before the reform, a judge might have travelled about 10 to 12 hours by car).

2.3.2 Case Nature Related Problems

In 2004, 83.9% of the civil cases that have been pending for more than two years in the FIC of North Cairo were due to the lack of assistance by the experts assigned to help judges regarding the technical parts of the case (MOJ, 2005 annual performance report). The position of judicial expert can be quite misleading, as expertise is usually associated with quality. However within the Egyptian judicial career system, the so called judicial experts are regular officers with different educational backgrounds that assist judges when it comes to commercial, industrial, engineering or agricultural related conflicts that need a certain educational background. Those experts are not assigned a fixed working place, hence they enjoy high mobility. Moreover they are not offered good working conditions and their job is not accompanied by prestige comparable to that of a judge, hence attracting mostly unskilled labour. Civil and family cases according to their nature sometimes require more than a legal background to be solved and hence might enjoy lower resolution rates than their corresponding criminal ones within the same court. Table 1 to 3 show the resolution rate of civil, criminal and family cases before and after the 2007 reform program. Resolution rate can be defined as being the ratio of the number of resolved cases to total number of filed cases. Where filed cases comprises the new filed cases at the beginning of each judicial year plus the pending cases of the previous year. Resolution rates of individual courts are the main indicators used by the MOJ, to judge upon the quality of their reform process.

$$\text{ResolutionRate} = \frac{\text{ResolvedCases}}{\text{TotalFiledCases}} * 100$$

$$\text{FiledCases} = \text{Pendingcases}(t - 1) + \text{newfiledcases}(t)$$

Table 1: Court Performance Data 2005-2009 (Criminal District Courts)

Year	Filed+Pending Cases	Resol. Cases	Resol. Rate	Rate of change in Resol. Rate
2005	8634622	7678613	88,9%	+0,22%
2006	7712436	6878662	89,1%	+0,34%
2007	7828892	7001619	89,4%	+3,36%
2008	6404781	5918280	92,4%	+3,68%
2009	6659142	6385404	95,8%	

Source: MOJ, 2010

Table 2: Court Performance Data 2005-2009 (Civil District Courts)

Year	Filed+Pending Cases	Resol. Cases	Resol. Rate	Rate of change in Resol. Rate
2005	1862217	1245996	66,9%	+4,04%
2006	1934502	1347672	69,6%	+2,01%
2007	2013502	1429762	71%	+20,99%
2008	1787758	1536389	85,9%	+4,66%
2009	1971181	1773455	89,9%	

Source: MOJ, 2010

Table 3: Court Performance Data 2005-2009 (Family Courts)

Year	Filed+Pending Cases	Resol. Cases	Resol. Rate	Rate of change in Resol. Rate
2005	1013250	695373	69%	-1,45%
2006	970147	664127	68%	-1,47%
2007	1126237	749204	67%	+10,45%
2008	957555	712820	74%	+4,58%
2009	941312	728451	77,39%	

Source: MOJ, 2010

It is clear from the above tables that the resolution rate has increased by a significant amount after the reform program in all three fields (civil, criminal and family matters). However it can be noticed that the resolution rate of criminal cases is the best (95,8%) among the three types while family cases ranks least (77,39).

Looking at the distribution of different types of filed cases and their resolution rate by FIC-region or domain, we noticed that the type of cases mostly filed is the criminal type, while family cases are rarely filed. The same applies to the corresponding resolution rates as criminal cases enjoy the highest resolution rate, while family cases the lowest. This evidence might be considered a reason why civil and family cases get lower attention in the regular curricula of Egyptian law schools. Moreover, the rate of crime is considered one of the important indicators that is widely used (e.g. in calculating the rule of law) to judge the institutional environment or the legal stability of a country, which renders the criminal share of total resolutions a special attention by the authorities and decision makers . Table 4 and 5 provide a detailed picture on the percentage of the different types of field and resolved cases respectively within the domain of each FIC.

Table 4: Percentage distribution of field cases per type per court domain in 2009

<i>Court</i>	<i>Ratio civil</i>	<i>Ratio criminal</i>	<i>Ratio family</i>
North Cairo	44,61%	46,47%	8,92%
South Cairo	16,20%	76,65%	7,15%
Giza	15,51%	78,74%	5,75%
Banha	45,86%	23,39%	30,75%
Alexandria	27,37%	65,64%	6,98%
Tanta	38,14%	40,98%	20,88%
Zakazik	50,76%	21,13%	28,11%
El Mansoura	46,28%	27,44%	26,28%
Shebin El Kom	57,37%	14,47%	28,16%
Damanhour	60,20%	15,44%	24,36%
Kafr El Sheikh	14,92%	73,33%	11,75%
Damieta	16,77%	76,23%	7,00%
Port said	44,31%	32,73%	22,95%
Ismailya	7,58%	85,37%	7,06%
Suez	34,32%	59,16%	6,52%
Fayoum	6,12%	87,34%	6,54%
Bani suief	16,01%	70,10%	13,89%
Menia	5,74%	88,68%	5,58%
Asiut	23,87%	64,28%	11,85%
Sohag	13,24%	78,30%	8,46%
Qena	9,69%	88,12%	2,19%
Aswan	4,67%	93,98%	1,35%
Average	27,25%	59,45%	13,29%

Source: MOJ, 2010

Table 5: Resolution Rate (R.R) per case type per court domain in 2009

Court	R.R civil	R.R criminal	R.R family
North Cairo	94,94%	96,50%	97,63%
South Cairo	94,41%	98,36%	78,93%
Giza	89,49%	98,65%	79,70%
Banha	76,04%	98,54%	72,31%
Alexandria	96,21%	99,41%	35,07%
Tanta	97,65%	94,66%	75,18%
Zakazik	93,00%	98,96%	80,76%
El Mansoura	94,24%	88,47%	87,21%
Shebin El Kom	85,09%	95,60%	84,66%
Damanhour	97,43%	95,85%	54,15%
Kafr El Sheikh	81,80%	99,96%	62,75%
Damieta	98,02%	99,53%	89,31%
Port said	79,47%	95,30%	85,21%
Ismailya	65,46%	99,54%	86,77%
Suez	69,70%	96,24%	66,32%
Fayoum	75,26%	98,49%	87,68%
Bani suief	71,39%	94,87%	83,05%
Menia	61,37%	98,01%	85,07%
Asiut	98,92%	98,36%	93,25%
Sohag	86,61%	98,98%	92,10%
Qena	79,07%	91,97%	85,76%
Aswan	80,98%	82,35%	83,27%
Average	85,07%	96,28%	79,28%

Source: MOJ, 2010

2.3.3 Case Load Distribution

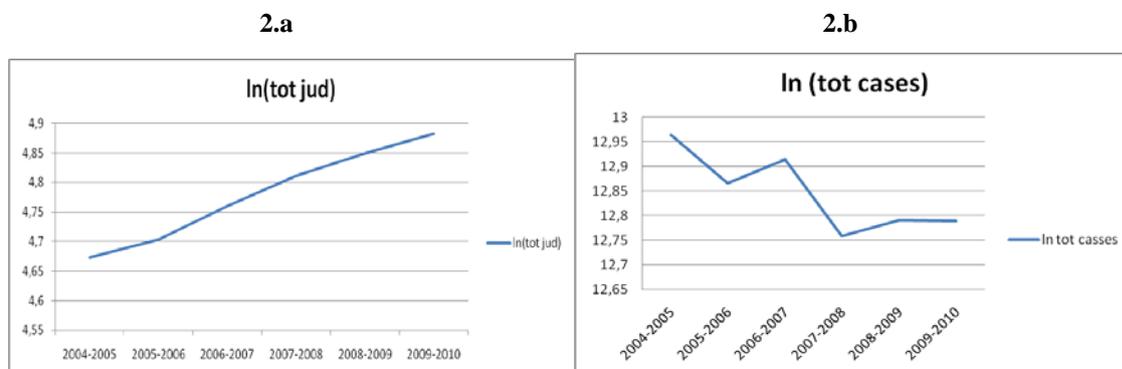
Last but not least, we should refer to one of the main obstacles of the Egyptian judicial system before the introduction of the reform program. This is the random distribution of case load among judges among the different courts and within the same court. The system didn't depend on a certain criterion when assigning more or less judges to the different courts. The whole process was run randomly according to the demands of the different court presidents and their personal opinion. Moreover this system was also applied within each court, as there was no agreed upon criterion to distribute caseload among the different judges within the same court. Accordingly, judges who finish their work promptly were given higher workload to improve the overall performance of the court. Hence judges who were performing well became reluctant to finish their cases in order to avoid additional workload and those who were lazy and slow didn't find any motive to change their attitude as they are always backed up by others. Accordingly, when asking judges about the timeliness of their cases, they might blame the degree of difficulty or the huge number of their assigned cases. Hence, in order to avoid this conflict and to achieve a fair distribution of case load, the MOJ has used the so called CDC to ensure a fair distribution of case load among judges. This new statistical

technique is developed in 1.10.2007 as is considered a main factor of the judicial reform program in FICs. It is calculated by assigning to each type of case and case nature of the same type (e.g. different types of criminal and civil cases) a certain weight according to its degree of difficulty (average time use to be spent to settle a similar case before). Afterwards they divide the number of available cases, each multiplied by its corresponding CDC by the available number of judges to be able to decide upon the caseload per judge and observe a systematic caseload distribution mechanism.

$$\text{Caseload / Judge} = \frac{\sum (\text{CDC} * \text{Case})}{\text{NumberofJudges}}$$

The CDC is considered a tool used to draw conclusions on the assigned case load per judge within the same FIC in a compatible manner. However it must be said that looking at the data reports on judicial staff members of different degrees registered at the MOJ during the last six years, no great remarkable changes are noticed. On the contrary, at the beginning of the reform (between 2006/2007 and 2007/2008), a remarkable reduction of filed cases (Figure 3.b) was accompanied by an increase in judicial staff in almost all FICs¹⁰ (MOJ, annual judicial report 2010). However it must be said that the number of judges after 2007 increased annually at a minimal decreasing rate. Looking at Figure 3.a, a slight inward kink can be seen at the beginning of each judicial year. A possible reason provided by the MOJ, is that during 2006/2007 the CDC was not yet applied and at the mean time the available pending cases shrank rapidly as a consequence of launching the reform program and once again after 2009 due to imposing high court (case filing) fees.

Figure 3.a and 3.b: Trends of the Average Number of Judges and Caseload in FIC's (2004-2010)



¹⁰ To get a clear overview about the staffing and caseload trend within each court, see the graphical illustration of the variables presented in the appendix.

3. Identifying the Determinants of Court Output

3.1 Model Specification and Data Analysis

In examining the determinants of court performance in Egypt under the ongoing reform program, a panel data model is conducted on 22 FICs and the Family Courts belonging to the same domain for the time period 2004/05-2009/10. The reason for including family cases although they are tackled outside the authority of the regular FIC since 2004 is that as described before the reports on the number of judges assigned to FICs (criminal and civil cases) per year still includes Family Court judges, which makes it impossible to obtain information about the size of the judiciary assigned to solve civil and criminal cases only. Similar to Dimitrova-Grajzl et al. (2010), Beenstock and Haitovsky (2004) and Rosales-Lopez (2008), we use the number of resolved cases or court output as our proxy of court performance. In this regard, the number of resolved criminal and civil cases per year registered at each of the twenty-two FICs and the number of resolved family cases registered at the Family Courts are added together. The source of this data is the Egyptian MOJ. However, one must take into consideration that the number of resolved cases is a purely quantitative measure of court activity and does not directly reflect on the quality of court's decisions. Dimitrova-Grajzl et al. (2010) explain that any indirectly calculated measure that seeks to approximate court activity and the exact duration of cases with court-level data e.g. 'case turnover ratio', 'congestion rate', and 'disposition time' will necessarily tend to over-generalize and obscure the dynamic in the court. As for the explanatory variables, we may divide them into three main categories: (1) Number of Judges; (2) Caseload; (3) Distance and (4) Reform. The indicators used are discussed sequentially in addition to the theoretical rationale for their inclusion in the regression model conducted. A graphical presentation for all the variables per court is presented in Appendix II.

- (1) *Judges*: represents the total number of serving judges per court per year. Courts or the mechanism of case resolution is considered a labor intensive production process. Judges are the most important form of labor component, especially in Egypt where all public organizations in general and courts in specific are labor intensive units. Egyptian courts lack behind concerning the use of modern technology in judicial work, in the sense that a judge has e.g. to look up all laws and case related details etc. using available documents, books and papers, which exerts more workload on judges. Empirical evidence on the impact of judicial staffing is rather mixed and therefore inconclusive. In other words it can be said that the sign and magnitude of the impact of

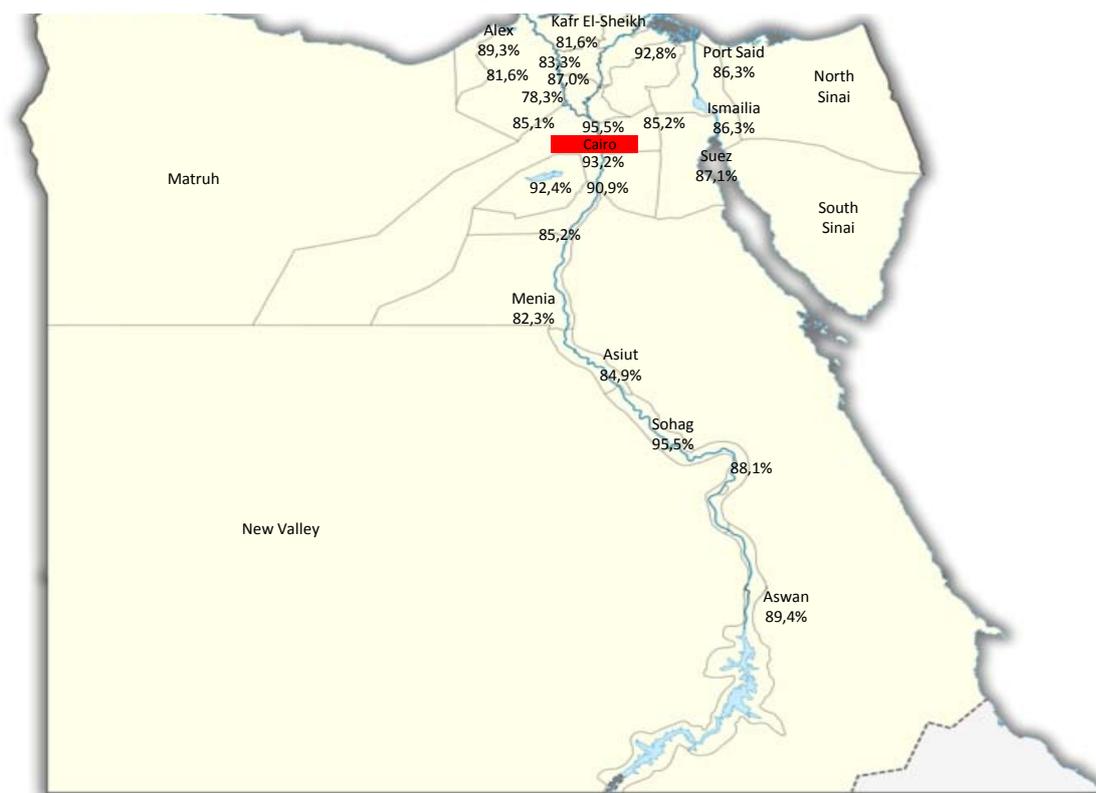
judicial staffing on court output is still vague and thus ultimately an empirical question. Hence it is still not clear whether an increase in the number of judges would lead to an increase, no change, or even decrease in the number of resolved cases. In the case of Egypt, we expect the available number of judges per court to play a significant positive role in the case resolution process.

- (2) *Caseload*: represents the total number of cases filed per court per year. As explained before, it is the sum of pending cases of previous years and the new filed cases of the current judicial year. It is considered a proxy for demand for court services; hence it is considered an important determinant of court output. Formal literature concludes that greater demand for court services might incentive judges and hence positively influence court output on the one hand (Rosalez-Lopez, 2008 and Dimitrova-Grajzl, 2010). But on the other hand, it is sometimes argued that more caseload leads to excessive workload, hence creating a congestion effect (Murell, 2001 and Buscaglia and Ulen, 1997). Dimitrova-Grajzl et al. (2010) explain that the magnitude of the impact of caseload on the number of resolved cases depends on the interplay between incentives and the resulting congestion effect. If the congestion effect outweigh the incentives of the judges, then we would expect the resolved cases negatively related or not to be related at all with caseload and vice versa. Hence it can be said that even with regard to caseload, the literature still salient to represent a unique magnitude of its impact on court performance or output. In the case of Egypt, we actually expect a positive relation between both variables, as the MOJ usually gives more attention¹¹ to courts with higher caseload which inserts some sort of pressure on these courts to finish their cases more adequately (Zaki, 2010).
- (3) *Distance*: measures the distance of each court domain (city) from Cairo. Cairo is the capital city of Egypt and represents the centre of Egypt's political and cultural life. It is where the MOJ, the constitutional court and every other judiciary related organization are located and thus enjoys a relative strategic importance. Egyptians mostly refer to Cairo as being Misr, the Arabic pronunciation of Egypt, emphasizing the city's importance and influence. Figure 4 below, shows a map of Egypt displaying court resolution rate of the 22 FICs by location. We can see that Cairo FIC (North- (95,5%) and South Cairo (23.2%) aggregated) enjoy the highest resolution rate and that courts around Cairo with the existence of a few exceptions seem to enjoy have higher resolution rates than those far away, which makes it interesting to test the

¹¹ Attention of the MOJ, is presented in e.g. conducting more inspection campaigns to check court performance and assigning the best qualified judges to courts with higher shares of caseload (Zaki, 2010).

significance of distance from Cairo on court output. We expect that courts around the capital city Cairo produce more output as they enjoy more strategic importance in the country. This variable was not taken into consideration by similar studies on court performance before, and hence there is no specific conclusion that can be observed from previous literature.

Figure 4: Average Court Resolution Rate per Court Location from 2004-2010



(4) *Reform*: this is a dummy variable representing the 2007 reform program that takes a value of 1 in years of reform (after 2007) and 0 otherwise. Reform reduced court output on the one hand, as it reduced the number of filed cases per court, as a consequence of minimizing the bulk of pending cases as a first step of the reform process in addition to raising the case filing fees in 2009. On the other hand it is expected to increase court output, due to incentivizing judges through implementing a fair case load distribution (CDC) and the structural adjustment program for judicial staff members and court services. Hence, it is hard to predict its net effect on court output.

In testing the relative significance of our variables, a fixed effect regression model is specified. The model includes similar to the aforementioned studies the aggregated form of

the variables (total number of judges and caseload), in addition to the distance variable and a dummy representing reform. Fixed effect estimation, in contrast to a regular pooled OLS model helps avoiding endogeneity problems that may occur because of court-level unobserved heterogeneity included in the error term ε_{it} . Court performance may depend on the general extent of criminal activity in the domain of each FIC (for e.g. Upper Egypt and larger cities usually involve a higher level of criminality)¹². Moreover as referred to by Dimitrova-Grajzl et al. (2010)¹³ in the case of Slovenian Courts of First Instance and District Courts, one might expect that the number of judges responds to court output: “ceteris paribus, if the number of resolved cases in a court is low, more judges may be allocated to that court”. Hence, a Hausman test is carried out to ensure the absence of reverse causality between the number of judges and the amount of resolved cases to observe reliable results.

3.2 Model Estimation and Outcome

As discussed before, a regular pooled OLS should not be implemented in this case as it would yield biased and inconsistent results due to possible endogeneity problems associated with our model specification. Hence to solve the problem of possible correlation between judicial staffing and case load on the one hand and possible unobserved court specific data on the other hand, a fixed effect model is necessary. Conducting the analysis, the following model is obtained:

$$\ln(\text{Resolved})_{it} = \beta_1 + \beta_2 \ln(\text{Caseload})_{it} + \beta_3 \ln(\text{Judges})_{it} + \beta_4 \ln(\text{Distance})_i + \beta_5 R_t + C_i + \varepsilon_{it}$$

(eq.1.1)

Where $i = 1, \dots, 22$ stands for the number of courts and $t = 1, 2, \dots, 6$ identifies the time period. (*Resolved*) represent the total number of resolved cases (civil, criminal and family) per court per year. (*Caseload*) and (*Judges*) represent respectively the total number of filed cases and judicial staff members per court per year. (*Distance*) is the gravity variable as explained before and *R* is a reform dummy. C_i on the one hand is a set of dummies

¹² Hence leading to a variable we do not observe but still influencing our model.

¹³ Dimitrova-Grajzl et al. (2010:20) also argued that the demand for court services could also respond to the number of resolved cases. However it must be said that regarding caseload distribution in Egypt, plaintiffs are not free to file a case in any court, as each person belong to a certain governorate and hence fall in the domain of a certain court. Thus the latter argument might not be applicable on the Egyptian case.

representing court fixed effects¹⁴. Finally, ε_{it} represents the error term which is assumed to be uncorrelated with $\ln(Judges)_{it}$ and $\ln(Caseload)_{it}$.

Table 6: Model Output¹⁵:

	(A) LSDV	(B) Dynamic
Constant	1.67** (2.12)	-0.002 (-0.30)
Ln(tot.cases)	0.83*** (13.4)	0.87*** (11.5)
Ln(tot.jud)	0.11** (2.16)	0.12* (1.82)
Ref	0,01 (0.86)	0.03 (1.08)
Ln gravity	-0,00 (-0.38)	-0.00 (-0.18)
Ln (Res_1)		0.05 (0.50)
N	132	88 ¹⁶
R2	0.99	0.75
Wald Joint	467.5	171.2

Table 6, Column 1 presents the results of eq.1.1. It can be said that regarding the signs of all four variables, they are all in line with our expectations. Moreover caseload, as well as the number of judges significantly influences court output at a 1% and 5% level respectively. However the reform dummy and the distance variable do not have a significant impact on court output. Ceteris paribus, a 10% increase in the number of judges leads to a 1,1 % increase in court output, while a 10% increase in caseload leads to a 8.2% increase in the number of resolved cases. Implementing an autoregressive model of degree one, the results of the first model almost remain unchanged¹⁷. Ceteris paribus, a 10% increase in the number

¹⁴ We start with $i=2$, hence omitting $i=1$, to avoid multicollinearity, when controlling for court fixed effects

¹⁵ T-values are reported in brackets

*: 10% significance level; **: 5% significance level; ***: 1% significance level.

¹⁶ $N=110$, if we consider the within group transformation instead of taking the first difference of the equation.

¹⁷ For this purpose, a dynamic panel data model following the Generalized Method of Moments (GMM)-type estimators of Arellano and Bond (1991) is conducted.

of filed cases, leads to 8.7% increase in court output, while a similar increase in number of serving judges, yields a 1.2% increase in court output. Moreover $\ln(\text{Resolved})_{it-1}$ is found to be insignificant, indicating the absence of any autoregressive impact in our analysis.

Fixed effects estimation might have helped to overcome possible endogeneity problems resulting from possible correlation between explanatory variables and/or existing fixed unobserved court-level data, but it cannot help to overcome a reverse causality problem. Hence, referring to the reverse causality problem discussed before where judicial staffing and case load in the current period responds to the number of resolved cases in the previous period, it is expected that the error term ε_{it} in equation (1.1) might on the one hand be correlated with $\ln(\text{Judges})_{i,t+x}$, $x > 0$. On the other hand it is uncorrelated with current and past values of $\ln(\text{Judges})_{it}$ and $\ln(\text{caseload})_{it}$ as judicial staffing in the current period might only be a consequent of court output in the previous period. If this assumption is true, one might expect that the model output observed from a fixed effect estimation to be biased and inconsistent. Accordingly, it is necessary to conduct a Hausman test to compare the results of the fixed effect estimation with those obtained using a 2 SLS analysis, and reports the better model. As presented in the Appendix (Table 6), the Hausman test indicates the absence of reverse causality between the number of judges and resolved cases and as a consequence, the coefficients provided by the fixed effect model are considered efficient and reliable.

To sum up, it can be said that regarding the size of the judiciary and caseload on the one hand, our empirical evidence indicates that, holding everything else constant, court output significantly depend on the number of serving judges and caseload. More judicial staff members and higher levels of filed cases lead to higher court output. On the other hand, the court location and its distance from Cairo, in addition to the reform program did not have a statistically significant impact on court output. Although Cairo and some of the courts surrounding this capital city enjoy higher resolution rate compared to some other FICs that are located in Upper Egypt or Sinai, it is not correct to generalize this phenomenon as its corresponding hypothesis is falsified by our model. Concerning the magnitude of the reform dummy, it can be expected that the contradicting effects of the reform program might cancel each other and hence lead to an insignificant effect. As mentioned before, reform caused a fair distribution of case load among judiciary and hence motivated them to resolve more cases on the one hand. On the other hand it has diminished the great number of pending cases in FICs and caused an increase in case filing fees leading to fewer cases filed and hence fewer output

per court per year. This fact however cannot explain whether the reform program has increased or decreased court efficiency, as our implemented model only explains which determinants are responsible for changes in court output. The following section allows us to integrate an inefficiency term in our analysis and hence test the impact of the reform process on court efficiency.

4. The Impact of the 2007 Reform on Court Efficiency

4.1 A Stochastic Frontier Analysis (SFA)

Court efficiency is quite difficult to determine, as we do not have any data on the quality of case resolution. Rather we just have data on court output (the number of resolved cases) and one type of the court inputs that are used to produce this output (judges: labor input). Technical Efficiency can be measured by examining whether a production unit (in our case: court) produces the maximum output given the level of inputs employed. Green (1993) defines the level of technical efficiency by the relationship between observed actual production and some ideal or potential production. We can think in this case of a production possibility frontier (PPF) with perfectly efficient courts lying on this frontier (technically efficient) and others lying inside this frontier (technically inefficient) with the ratio of actual to potential production defining the level of efficiency of the individual court. There exist different approaches to estimate the technical efficiency of a court. Seiford and Thrall (1990) generally categorize them into two main groups: parametric (stochastic) versus non-parametric (non-stochastic) methods.

Most studies conducted to measure judicial efficiency implement a non-parametric technique, e.g. Data Envelop Analysis (DEA) using the size of the judiciary as a main if not the sole input factor for court output to measure court efficiency. Kittelsen and Forsund (1992) and Pedraja and Salinas (1995) e.g. measure court efficiency focusing mainly on the number of judges and office staff as important input factors. In a similar attempt, Gorman & Ruggiero (2009) analyze efficiency of US judicial district prosecution offices by considering the number of prosecutors, in addition to other staff members. Yeung and Azevedo (2009) also managed to include the number of available computers (capital input) in addition to the number of judges (labor input) in their analysis of court efficiency. Other studies managed to collect data on a wider range of input variables to measure court efficiency. Lewin, Morey &

Cook (1982), considered the number of district attorneys and assistants, working days of courts (proxy for the number of judges), caseload and the size of white population as input factors to measure court efficiency. Moreover, Schneider (2005) managed to collect data on judicial qualification and age to test their impact on the efficiency of German labour courts.

The DEA technique provides an efficiency rank for each court within the whole judicial system and moreover it does not impose any assumptions on the functional form and the distribution assumption of the data¹⁸. However, it must be mentioned that the efficiency estimates provided by DEA or any other non-parametric method may be biased, if the production process is largely characterized by stochastic elements (Herrero and Pascoe, 2002). In other words, if court output depends on factors that are not captured by our model, than omitting the error term would yield biased results. Accordingly, this study uses for the first time stochastic frontier analysis (SFA), which is a parametric and stochastic method to identify sources of court inefficiency, in addition to explaining court output. Similar to the method of corrected ordinary least squares (COLS)¹⁹, SFA simply estimates a linear regression through a cloud of input-output points of the data sample that forms a production frontier. SFA however distinctively replaces the residual of the OLS model by a two-part error term. Following the Battese and Coelli error component model (1992), incorporating an inefficiency term (U_{it}), the production function can be written as follows:

$$Y_{it} = X_{it} \beta + (V_{it} - U_{it}) \quad \text{eq.1: Stochastic Frontier Production Function}$$

Where Y_{it} and X_{it} are the outputs and inputs of the i th court respectively in year (t). The two-part error term ($V_{it} - U_{it}$) consists of a normally distributed component (V_{it}), that captures the usual measurement errors, and a half-normally distributed component (U_{it}), that can assume only non-negative values. This latter error term reflects systematic downward departures from the frontier function which are associated with technical inefficiency of production and can be expressed as follows:

$$U_{it} = Z_{it} \delta + W_{it} \quad \text{eq.2: Inefficiency Model}$$

¹⁸ Using DEA e.g. Yeung and Azevedo (2009) in their study on Brazilian courts, found out that keeping human and material resources constant at least 81% of the courts examined could improve their efficiency.

¹⁹COLS works through shifting this regression line upwards until none of the residuals is strictly positive

Where z_{it} is vector of a set of explanatory variables associated with the inefficiency term, δ is a vector of unknown coefficients and W_{it} is the error term of the inefficiency function. Using FRONTIER²⁰, technical efficiency of each production unit can be computed through maximizing the log likely hood function of the model.

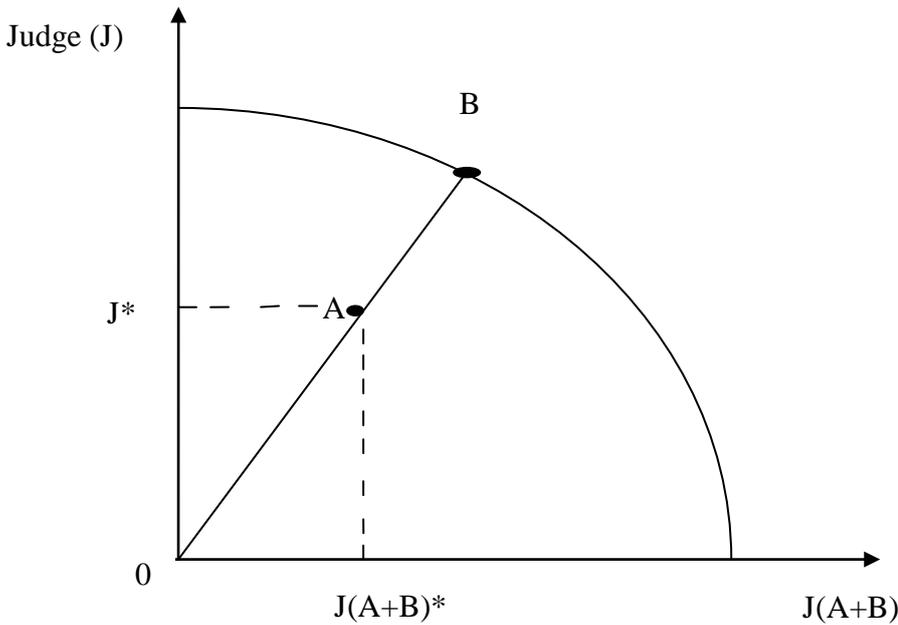
4.2 Model Specification and Results

Using our data on Egyptian FICs and their corresponding family courts, we split the aggregated court performance determinants used before (*caseload*) and (*judiciary*) among our two equations of the stochastic frontier analysis. Now, we differentiate between higher level judges: $J(A+B)$ and younger, lower level judges of degree (J) in the court production process. Moreover, we differentiate between the number of filed civil, criminal and family cases, in order to be able to draw a conclusion on the link between case nature and court efficiency.

In order to understand how the process of estimating court efficiency works, Figure 5 briefly describes how efficiency measurement works, we first assume that if all input factors (in our case, judges of the different career levels) are employed efficiently by a court, then it is expected that it would produce on the obtained production possibility frontier (PPF), e.g. at point (B). Assuming that a court is currently producing at point (A), then it can move to point (B) without increasing the available number of judges if it is managing its resources more efficiently. Hence, the output oriented measure of technical efficiency ($TE_O(J, J(A+B))$) can be given by OA/OB .

²⁰ FRONTIER is a commonly used package for estimating stochastic production frontiers. See Coelli, 1996.

Figure 5: An Output Oriented Efficiency Measure



The two different judicial categories $J(A+B)$ and (J) are now used as input factors in the first equation, in addition to a (*year*) variable, to account for Hicks-neutral technological change. The amount of civil, family and criminal cases, in addition to a reform dummy and the distance variable however are inserted in the inefficiency equation (eq.4) to identify their possible impact on court efficiency.

Accordingly, our two new equations are:

Equation 3: Stochastic Frontier Production Function

$$\ln(\text{Resolved})_{it} = \beta_1 + \beta_2(\text{year}) + \beta_3 \ln J(A+B)_{it} + \beta_4 \ln(J)_{it} + (\text{Vit} - \text{Uit})$$

Equation 4: Inefficiency Model

$$U_{it} = \delta_1 + \delta_2 \ln(\text{civil})_{it} + \delta_3 \ln(\text{criminal})_{it} + \delta_4 \ln(\text{family})_{it} + \delta_4 R_t + \delta_5 \ln(\text{Distance}) + W_{it}$$

The model was estimated using the FRONTIER 4.1 software. The maximum-likelihood estimates are reported in Table 5 in appendix I. We find that the impact of the input

coefficients, except for the (J) variable, as well as the components of the inefficiency term is to a great extent as expected²¹.

Equation 5:

$$\ln(\text{Resolved})_{it} = 12.7 - 0.000(\text{year})^{***} + 0.20 \ln J(A+B)^{***}_{it} - 0.007 \ln(J)_{it}$$

(43.90) (-6.4) (3.8) (-0.38)

Equation 6:

$$U_{it} = 7.7^{***} + 0.00 \ln(\text{civil})_{it} - 0.43 \ln(\text{criminal})^{***}_{it} - 0.00 \ln(\text{family})^{***}_{it} - 0.49 R^{***}_t - 0.00 \ln(\text{Distance})$$

(7.87) (0.83) (-3.82) (-3.38) (-5.4) (-0.48)

$$\gamma = 0.91^* \quad 22$$

Log Likelihood function = -28.16*

The first-order coefficients β_2 and β_3 can be interpreted as elasticity's with respect to the factors $J(A+B)$ and (J). The sum of both input factors usually represents the scale elasticity, if both input factors were significant. However it is found that only superior level judges of degree A and B yield the expected sign and are statistically significant at the 1% level. Accordingly, if judges are increased by 1%, court output increases only by 0.2%. Therefore, it can be said that Egyptian FIC currently operate with decreasing returns to scale. Finally, the coefficient of the ($year$) variable is very small but statistically significant and negative; indicating that on average court output experienced an infinitesimally small decline over the previous six-year period.

The estimate for the variance parameter (γ) = 0.91, hence close to one which indicates that inefficiency effects are likely to be highly significant in our analysis of court output or in other words that productive inefficiency are important relative to the random noise term²³.

²¹ T-values are reported in brackets

*, 10% significance level; **, 5% significance level; ***, 1% significance level.

²² (γ) is the variance parameter of the inefficiency function that lies between zero and one. If $\gamma = 0$, then the variance of the inefficiency effect is zero, and so the model can be reduced to a traditional OLS model with all variables included in the original production function.

²³ For more details, see Battese and Coelli (1995), p. 330

The null hypothesis that there are no inefficiency effects ($H_0 : \gamma = \delta_0 = \delta_1 = \delta_2 = \delta_3 = \delta_4 = \delta_5 = 0$) is hence rejected at a 1% level²⁴.

The estimated coefficients in the inefficiency model are of particular interest to this study. The first important finding is the constant term of the inefficiency function, δ_1 . It is found to be positive, reflecting a rise in technical inefficiency throughout the last six years. Although the average court resolution rate has improved after the reform program, it seems that their efficiency with regards to the number of judges employed has decreased. Another important finding is that the most influential if not the sole component of caseload on court efficiency is the criminal load. Its coefficient is negative and significant at 1% level, indicating that a 10% increase in criminal caseload reduce court inefficiency by 4.3%. Although the coefficient of (family) cases is negative and significant at a 1% level, it is infinitesimally small (-0.6E-08), leaving a minimal impact on the efficiency condition of a court. The coefficient of civil cases is positive as expected (positive relation with inefficiency), however insignificant indicating no significant impact on court efficiency. The distance variable is also insignificant, meaning that a court's location or distance from the capital city does not influence its efficiency status. Last but not least, despite that the reform dummy is negative significant at 1% level, indicating that the reform program has significantly reduced court inefficiency, the average efficiency level throughout the last six years has been reduced by 7.7%. The drop in efficiency, caused by employing more judges and reducing the number of filed cases could not be offset by further efforts of the reform program. This result could be due to the short time period of de facto reform, which is nearly three years. According to our results, the average court efficiency of the analyzed 22 FICs (including the corresponding family courts) during the last three years of reform approached only 50.8%, which leaves room for further improvements. Table 6 presents efficiency measures before and after the reform program produced using FRONTIER. Column 5 and 6 of table 7 present the efficiency rank of each FIC before and after the reform program respectively. Column 7 provides a quick insight about the change in position of each court according to their respective efficiency status.

²⁴ the likelihood-ratio test statistic is 114.44

Table 7: Efficiency Rates of the 22 FICs before and after the reform program

Court	Average eff. before	Average eff. after	Change in ²⁵ efficiency	Rank before	Rank after	Change in rank
N. Cairo	87,50%	70,67%	-16,83%	1	6	-5
S. Cairo & Helwan	65,33%	52,67%	-12,67%	10	10	0
Giza & 6 th of Oct.	79,33%	72,33%	-7,00%	3	5	-2
Banha	75,67%	54,67%	-21,00%	6	9	-3
Alexandria	78,33%	81,00%	2,67%	4	3	+1
Tanta	75,33%	83,00%	7,67%	7	2	+5
Zagazig	66,33%	70,33%	4,00%	9	7	+2
Mansura	77,33%	72,67%	-4,67%	5	4	+1
Shebin el Kom	42,33%	48,00%	5,67%	15	12	+3
Damanhour	80,33%	87,75%	7,42%	2	1	+1
Kafr el Sheikh	70,33%	56,25%	-14,08%	8	8	0
Damietta	28,67%	32,25%	3,58%	18	18	0
Port Said	16,33%	17,50%	1,17%	19	20	-1
Ismailia	20,67%	25,00%	4,33%	20	19	+1
Suez	14,00%	14,75%	0,75%	22	22	0
Faiyum	39,00%	38,25%	-0,75%	16	16	0
Beni Suef	38,00%	33,25%	-4,75%	17	17	0
Menia	47,33%	47,75%	0,42%	13	13	0
Asiyut	44,67%	44,25%	-0,42%	14	15	-1
Sohag	54,00%	51,75%	-2,25%	11	11	0
Qena	48,33%	46,00%	-2,33%	12	14	-2
Aswan	20,33%	17,25%	-3,08%	21	21	0
Average	53,16%	50,79%	-2,37%			

It can be noticed that average efficiency dropped by 2.37% after launching the reform, indicating that resources are not efficiently employed. North Cairo FICs on the one hand, which is considered one of the largest and strategic courts in Egypt dropped 5 places to occupy a rank of 6 after being number 1 before the reform program. Tanta FIC on the other hand improved its efficiency to reach place number 2 after being number 7. Damanhour FIC, managed to reach place number 1 after being number before reform. Regarding the rest of the courts, especially the bottom of the table (referring to the southern part of Egypt), no remarkable changes can be noticed. These facts and figures are however not realized by the Egyptian government which still base its judgement on the court resolution rate as a main criterion to judge court efficiency. Table 8 shows the resolution rate of each court before and after the reform program, in addition to the change in resolution rate.

²⁵ Calculated by taking the simple average of the previous two columns.

Table 8: Resolution Rates of the 22 FICs before and after the reform program

Court	Average resol. rate before	Average resol. rate after	Change in resolution rate	Change before	Change after	Change in rank
North Cairo	96,38%	94,58%	-1,80%	1	1	0
South Cairo & Helwan	94,87%	91,61%	-3,26%	3	5	-2
Gizeh & 6 th of October	90,41%	91,31%	0,90%	8	7	+1
Banha	81,86%	88,29%	6,43%	15	14	+1
Alexandria	94,55%	84,01%	-10,54%	4	21	-17
Tanta	86,75%	87,25%	0,49%	13	17	-4
Zagazig	81,28%	89,19%	7,91%	16	11	+5
Mansura	72,08%	94,56%	22,47%	20	4	+16
Shebin el Kom	68,37%	88,20%	19,83%	21	15	+5
Damanhour	67,24%	84,65%	17,41%	22	20	+2
Kafr el Sheikh	79,55%	83,69%	4,14%	18	22	-4
Damietta	91,35%	94,56%	3,20%	7	3	+4
Port Said	94,51%	91,23%	-3,28%	5	8	-3
Ismailia	87,92%	84,69%	-3,24%	10	19	-9
Suez	87,49%	86,65%	-0,85%	12	18	-6
Faiyum	92,98%	91,85%	-1,13%	6	6	0
Beni Suef	80,68%	89,61%	8,93%	17	10	+7
Menia	74,34%	90,20%	15,86%	19	9	+10
Asiyut	82,55%	87,31%	4,76%	14	16	-2
Sohag	95,07%	95,93%	0,86%	2	2	0
Qena	87,53%	88,74%	1,21%	11	12	-1
Aswan	90,24%	88,57%	-1,67%	9	13	-4
Average	85,36%	89,39%	4,03%			

According to their criterion, court performance (measured by resolution rate solely) seems to be increased by 4.03% within the years of reform. According to this type of performance measure, North Cairo FIC, seems to have maintained its efficiency rank as being the most efficient court, where as it was Damanhour FIC that has occupied number 1 in our SFA efficiency analysis as shown in table 6. Mansoura FIC has improved its resolution rate a lot, pushing up its rank by 16 points to number 4, while Alexandria FIC's rank deteriorated by 17 points to reach place 21 after the reform. Comparing the efficiency of these latter two courts with their efficiency measures obtained by the SFA analysis, Alexandria ranks third and Mansoura fourth, hence no significant difference between both courts. According to these results, it becomes obvious that there is a big difference between depending on a court's

resolution rate and its respective efficiency measure to draw policy recommendation on reform procedures necessary to improve courts performance.

5. Conclusion and Policy Implications:

Till now no effort has been done to neither analyze court performance nor measure the impact of the last judicial reform program on the efficiency of the Egyptian judicial system. This attempt becomes highly crucial at the current point of time to be able to identify the main points of weakness of the last reform processes and offer recommendations for the new ministry to be considered under the ongoing structural change in Egypt. Our study show that increasing the total number judicial staff members in general increases court output. However when accounting for different career level judges in our efficiency analysis, only higher level judges tend to have a significant impact on court output. Accordingly if the court president wants to increase court output, he should require more judges of degree A and/or B and not just require increasing the number of total judges. Till now the literature has provided mixed and inconclusive results regarding the impact of the number of judges on court output. In the case of Egypt, it can be said that a positive significant relation is plausible, as Egypt, among other developing countries is a labor intensive country, leaving a minimal role for the technological impact in the case resolution process²⁶. Moreover we found that, the total number of filed cases also increases court output, supporting the formal literature on court performance. Greater demand for court services forms a sort of pressure and hence incentives judges to finish more cases. Analyzing the impact of different case types on the efficiency status of the court system, our results show that solely increasing the amount of criminal cases reduces court inefficiency, leaving civil cases with no impact at all on efficiency. Regarding the family cases they were found to have a statistically significant impact on court efficiency but almost with no economic impact. This might be a consequence of their minimal share within the total caseload distribution of each court. Regarding the impact of court location or its distance from Cairo, it is found that it has no impact, neither on court performance, nor on the efficiency status of the courts. Last but not least, our results from the fixed effect estimation show that the reform program didn't significantly influence court output. This finding can be mainly linked to the two opposing effects the reform program has caused: on

²⁶ Table 8 in the Appendix gives a picture on the available number of computers per court, in addition to the share of the number of filed cases per computer per court. This type of data is only available for the year 2010, hence could not be considered our panel data analysis. When accounting for the number of computers in a cross section model they tend out to be insignificant.

the one hand it reduced court demand, hence leading to fewer resolved cases and on the other hand it has increased the number of judges and incentivized them through implementing a fair case load distribution mechanism, hence leading to more resolved cases.

SFA however show that despite the fact that the average court efficiency has declined throughout the last six years in general, the reform program itself has contributed to the reduction of court inefficiency. Average court efficiency throughout the last six years was found to be 51.6% according to our SFA. This result might surprise or even shock Egyptian decision makers in the MOJ, who only consider the average resolution rate during the last three years (years of reform) which is approximately 89.5% to measure the efficiency of their system. In other words, the MOJ does not account for technical efficiency but rather consider the number of resolved cases as a percentage of total filed cases (resolution rate) of each court as a sole criterion to judge on their court efficiency. This criterion might be misleading when considering the widely diverging number of judges (labor input) assigned to each court, while controlling for court size. Accordingly, the MOJ should consider using other techniques to judge upon the quality of their reform programs. Finally it can be said that further data collection and research is required to carefully study the efficiency of each FIC using different input factors to be able to identify common characteristics of efficient courts.

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Appendix I.

Table 1: descriptive statistics:

Sample size: 1 – 132

	ln (resol)	ln (tot cases)	ln (tot jud)	ln (gravity)
Mean	12.71	12.85	4.78	4.86
Standard Deviation	0.68	0.70	0.50	1.04

Table 2: Correlation Matrix:

	ln resol	ln(tot cases)	ln(tot jud)	reform(3)	ln gravity
ln resol	1.0	0.99	0.86	-0.06	-0.02
ln(tot cases)	0.99	1.00	0.83	-0.10	-0.03
ln(tot jud)	0.86	0.83	1.00	0.13	0.12
reform(3)	-0.06	-0.10	0.13	1.00	0.03
ln gravity	-0.02	-0.03	0.12	0.03	1.00

Table 3: descriptive statistics (SFA Model): Sample Size 1-132

	ln (resol)	ln j(A+B)	ln (J)	Ln(civil)	Ln(criminal)	Ln(family)	ln (gravity)
Mean	12.71	4.35	3.64	11.03	12.52	10.54	4.86
Standard Deviation	0.68	0.497	0.68	0.79	0.71	0.77	1.04

Table 4: Correlation Matrix (SFA Model):

ln resol	reform(3)	ln gravity	ln J(A+B)	ln(j)	ln(civ)	ln(crim)	ln(fam)	
ln resol	1.00	-0.06	-0.02	0.76	0.82	0.87	0.99	0.89
reform(3)	-0.06	1.00	0.03	0.22	-0.07	-0.16	-0.10	-0.02
ln gravity	-0.02	0.03	1.00	0.15	0.04	0.03	-0.05	-0.02
ln J(A+B)	0.76	0.22	0.15	1.00	0.68	0.69	0.71	0.64
ln(j)	0.82	-0.07	0.04	0.68	1.00	0.74	0.78	0.71
ln(civ)	0.87	-0.16	0.03	0.69	0.74	1.00	0.81	0.78
ln(crim)	0.99	-0.10	-0.05	0.71	0.78	0.81	1.00	0.88
ln(fam)	0.89	-0.02	-0.02	0.64	0.71	0.78	0.88	1.00

Table 5: Model Output (SFA Model)²⁷:

Variable	ML Estimates (SFA)
Constant (beta 0)	12.7*** (43.9)
Year	-0.75E-08*** (-6.4)
Ln J (A+B)	0.20*** (3.8)
Ln (J)	-0.69E-02 (-0.38)
delta0	7.7*** (7.87)
Ln(civ)	0.14E-08 (0.83)
Ln(crim)	-0.43*** (-3.82)
Ln(fam)	-0.60E-08*** (-3.38)
Ref	-0.49*** (5.41)
Ln gravity	-0.95E-09 (-0.48)
$\sigma^2 = \sigma_u^2 + \sigma_v^2$	0.12*** (5.32)
$\gamma = \sigma_u^2 / \sigma^2$	0.91*** (10.00)
Log Likelihood function	-28.16**

²⁷T-values are reported in brackets

*: 10% significance level; **: 5% significance level; ***: 1% significance level.

Table 6: The Hausmann Test

Test: Ho: difference in coefficients not systematic

	(b) FE	---- Coefficients ---- (B) 2 SLS	(b-B) Difference	sqrt (diag(V_b-V_B)) S.E.
Intotcases	.825824	.8675421	-.0417181	.0307509
Intotjud	.1123437	.1475479	-.0352042	.
reform3	.0126856	.0165661	-.0038806	.0072764
_cons	1.566131	.8403766	.7257542	.0437073

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtivreg

$$\begin{aligned} \text{chi2}(4) &= (b-B)'[(V_b-V_B)^{-1}](b-B) \\ &= 0.99 \end{aligned}$$

$$\text{Prob}>\text{chi2} = 0.9115$$

(V_b-V_B is not positive definite)

Appendix II.

Graphical Representation of the Variables:

