

2012

Court efficiency gets major boost?

S. Djafari

Utrecht University

Acknowledgment

My sincere gratitude goes to my supervisor at Utrecht University, prof. dr. Ph.M. Langbroek. He gave me the freedom and courage to begin, endure and complete this thesis. He instilled in me a passion for education which motivated me to seek out academic opportunities. He challenged and encouraged me while giving me the tools I needed to complete this thesis.

I am, also, grateful to the members of the Council for the Judiciary. They were abundantly helpful and offered invaluable guidance and knowledge.

Special thanks, also, to all my friends, especially the members of Boerenbridge for sharing literature and assistance.

Finally, yet importantly, my gratitude goes to my beloved parents for their support.

Index

Acknowledgment	2
Index	3
Table of figures	6
List of terms with English translation	7
List of abbreviations	9
Abstract	11
1. Introduction	12
1.1. Administration of justice	12
1.2. Starting point	16
1.3. Main problem and issues	16
1.4. Thesis structure	17
2. History of WHGK	19
2.1. Introduction	19
2.2. Background of WHGK	19
2.3. Policy	22
2.4. WHGK	23
2.5. Conclusion	24
3. Theory	25
3.1. Introduction	25
3.2. Selected analytical methods	26
4.2.1. <i>Classic data analysis</i>	26
4.2.2. <i>Parametric regression analysis</i>	27
4.2.3. <i>Non-parametric analysis</i>	28
3.3. Features of research framework	28
3.4. Defining terms	32
4.4.1. Defining court production	32
4.4.2. Defining court output	33
4.4.3. Defining court input	35
4.4.4. Defining court value	36
4.4.5. Defining productivity	36
4.4.6. Defining efficiency	36

4.4.7.	Defining best practice.....	38
4.4.8.	Classification of the courts in FTE.....	40
3.5.	Framework for measuring court efficiency	41
3.5.1.	A model of stakeholder utility	41
3.5.2.	A model of court production	42
3.5.2.1.	Court behaviour	42
3.5.2.2.	Theory of production functions	44
3.5.2.3.	Specifying the production function.....	47
3.6.	Conclusion.....	52
4.	Method.....	53
4.1.	Literature Review.....	53
4.2.	Framework.....	54
4.3.	Data Collection.....	55
4.4.	Limitations.....	56
4.5.	Summary.....	57
5.	Results of previous research.....	58
5.1.	Empirical results of APE report	58
5.1.1.	Productivity	58
5.1.2.	Scale effect and efficiency	60
5.2.	Empirical results of SCP report of 2007.....	64
5.2.1.	Productivity.....	65
5.2.2.	Scale effect and efficiency.....	68
5.3.	Empirical results of SCP report of 2011.....	69
5.4.	Conclusion.....	70
6.	Data analysis of WHGK.....	71
6.1.	WHGK.....	71
6.1.1.	Board of Directors	71
6.1.2.	Operational management	72
6.1.3.	Congruent region	72
6.1.4.	Role of the Council for the Judiciary.....	72
6.1.5.	Amount of court locations	73

6.1.6. Divisions of the court map.....	74
6.2. Expected productivity and scale effects after WHGK.....	75
6.3. Conclusion.....	76
7. Conclusions	78
7.1. Sub-questions	78
7.2. Limitations and suggestions for further research	80
References	81
Annex I: Literature analysis concerning the scale effect	90

Table of figures

Figure 1: Current court map	15
Figure 2: Classification of the courts in FTE	40
Figure 3: Classification of the district courts in FTE in current court map	41
Figure 4: Relation between output (y) and input (x)	47
Figure 5: Court production function	47
Figure 6: Production per years of employment	59
Figure 7: Total court productivity, 2002-2005 (in hours per Euro and in index number with 2002=100)	65
Figure 8: Total court productivity by court size, 2002-2005 (in hours per Euro and in index number with 2002=100)	66
Figure 9: Individual district courts: total court productivity, 2002 and 2005 (in hours per Euro and in index number with 2002=100)	67
Figure 10: Scale effects of district courts in index numbers and different scales	68
Figure 11: Classification of the district courts in FTE before the revision	74
Figure 12: Classification of the district courts in FTE after the revision	75
Figure 13: Expected productivity and scale effects of district courts after the revision	76

List of terms with English translation

Act to change the court map	Wet herziening gerechtelijke kaart
Average practice	Gemiddelde praktijk
Average processing time	Gemiddelde behandeltijd
Average processing time per case category	Gemiddelde behandeltijd per zaakscategorie
Average standardized processing time per case category	Gemiddelde genormeerde behandeltijd per zaakscategorie
Caseload	Werklast
Chairman of the legal area of the district court	Sectorvoorzitter
Cost function	Kostenfunctie
Cost minimization	Kostenminimalisatie
Council for the Judiciary Act	Wet Raad voor de Rechtspraak
Director/manager of the court	Directeur bedrijfsvoering
Downscaled courts	Kleine gerechten
General Administrative Law Act	Algemene wet bestuursrecht
Government Accounts Act	Comptabiliteitswet
Increasing returns to scale	Schaalopbrengsten
Judges	Rechters/raadsheren
Judiciary Division Act	Wet op de rechterlijke indeling
Judiciary Organization Act	Wet op de rechterlijke organisatie
Labour productivity	Arbeidsproductiviteit
Legal areas	Sectoren
Management board	Gerechtsbestuur
Negotiated agreement	Bestuursafspraken
Notice of objection	Bezwaarschrift
Organization and Administration of the Courts Act	Wet Organisatie en Bestuur Gerechten

Production function	Productiefunctie
Profit maximization	Winstmaximalisatie
Small claims/small crimes sub-division	Kanton
State of affairs	Gang van zaken
Support staff	Ondersteuning
Time spent on disposing the case per sub-division of district court	Afhandeling van zaken bestede arbeidstijd per sector
Total productivity	Totale productiviteit
Upper limit	Bovengrens
Up scaled courts	Grote gerechten
Yield maximization	Opbrengstmaximalisatie

List of abbreviations

Awb	Algemene wet bestuursrecht
DEA	Data Envelopment Analysis
FTE	Full-time equivalent
OBG	Wet Organisatie en Bestuur Gerechten
WHGK	Wet Herziening Gerechtelijke Kaart

“Financing the justice system is a challenge for several reasons. While delivering justice is understood as fundamental to our society, the average citizen may not perceive or appreciate the tangible products of the system. Yet, undeniably, citizens are better off when the justice system swiftly and correctly handles criminals who endanger public safety. Citizens are better off when the rules of commerce are stable and enforced. In other words, when the justice system is working best, it may not be extremely visible, but it is extremely valuable.”¹

¹ C. Flango, A. McDowell, D. Saunders, N. Sydow, C. Cambell and N. Kauder, ‘Future Trends in State Courts 2012: American Bar Association in Task Force on Preservation of the Justice System, Report to the House of Delegates’, Williamsburg, VA: National Center for State Courts, 2012.

Abstract

On July 13 2012, the Act to change the court map was published.²

This Act will enter into force on January 1 2013.³ It aims to maintain a high degree of quality of justice and improve court efficiency. This thesis examines whether this Act can be expected to help improve court efficiency.

² Wet van 12 juli 2012 tot wijziging van de Wet op de rechterlijke indeling, de Wet op de rechterlijke organisatie en diverse andere wetten in verband met de vermindering van het aantal arrondissementen en ressorten (Wet herziening gerechtelijke kaart), ([Staatsblad 2012, nr. 313](#)).

³ Besluit van 12 juli 2012, houdende vaststelling van het tijdstip van inwerkingtreding van de Wet herziening gerechtelijke kaart en van artikelen, of onderdelen daarvan, van de wet van 29 september 2011 tot wijziging van de Wet op het notarisambt naar aanleiding van de evaluatie van die wet, alsmede regeling van enkele andere onderwerpen in die wet en wijziging van de Wet op het centrale testamentenregister en van de Wet ter voorkoming van witwassen en financieren van terrorisme (stb. 470), ([Staatsblad 2012, nr. 314](#)).

1. Introduction

The Act to change the court map⁴ (hereafter: WHGK) will enter into force on January 1, 2013.⁵ It aims to maintain a high degree of quality of justice and improve court efficiency. This thesis examines whether WHGK can be expected to help improve court efficiency. Briefly, this introduction will describe how courts have been organized to bring justice at a reasonable price. Since the Constitution of the Kingdom of the Netherlands (hereafter: Constitution) deals with the administration of justice, this thesis will give a brief description of the administration of justice and the current court map. Subsequently, this introduction will address the main issues and the structure of this thesis.

1.1. Administration of justice

According to Article 112 of the Constitution, the adjudication of disputes relating to civil law and the law of obligations is (exclusively) the responsibility of the judiciary.⁶ Article 112, paragraph 2, of the Constitution states that responsibility for the adjudication of disputes, which do not arise from matters of civil law, may be granted by the Act of Parliament either to the judiciary or to courts that do not form part of the judiciary.⁷ Article 113 of the Constitution stipulates that trial of offences, disciplinary proceedings and martial law shall also be brought before the courts. A sentence entailing deprivation of liberty may only be imposed by the judiciary.⁸ According to Article 116 of the Constitution, the judiciary

⁴ See note 2 above.

⁵ See note 3 above.

⁶ [Article 112, paragraph 1, of the Constitution of the Kingdom of the Netherlands](#) states: "The adjudication of disputes involving rights under civil law and debts shall be the responsibility of the judiciary".

⁷ This means that the method of dealing with such cases and the consequences of decisions shall be granted by the Act of Parliament.

⁸ [Article 113, paragraph 1, of the Constitution of the Kingdom of the Netherlands](#) states: "The trial of offences shall, also, be the responsibility of the judiciary"; Article 113, paragraph 2, of the Constitution of the Kingdom of the Netherlands states: "Disciplinary proceedings established by government bodies shall be regulated by Act of Parliament"; Article 113, paragraph 3, of the Constitution of the Kingdom of the Netherlands states: "A sentence entailing deprivation of liberty may be imposed only by the judiciary."; Article 113, paragraph 4, of the Constitution of the Kingdom of the Netherlands states: "Different rules may be established by Act of Parliament for the trial of cases outside the Netherlands and for martial law."

shall only be exercised by judges appointed by law⁹. This Article states that the organization, composition and the powers of the judiciary shall be regulated by Act of Parliament.¹⁰ Thus, the Constitution determines that the method of dealing with cases and the consequences of decisions should be regulated by Act of Parliament. An example of an Act of Parliament is the Judiciary Organization Act (*Wet op de rechterlijke organisatie*). It provides that with regard to courts belonging to the judiciary, there are three types of courts¹¹: the courts of first instance¹², the Courts of Appeal¹³ and the Supreme Court¹⁴. Another example of an Act of Parliament is the Judiciary Division Act (*Wet op de rechterlijke indeling*). According to this Act, the Dutch judicial map consists of nineteen district courts.¹⁵ Each district court is located in the principal seat of the district.¹⁶ Each district court consists of legal areas (*sectoren*). These areas include, amongst others, administrative law¹⁷, civil law¹⁸, criminal law¹⁹ and small claims²⁰/small crimes²¹ sub-division (*kanton*).

⁹ [Article 116, paragraph 1, of the Constitution of the Kingdom of the Netherlands](#) states: "The courts which form part of the judiciary shall be specified by Act of Parliament."

¹⁰ [Article 116, paragraph 2, of the Constitution of the Kingdom of the Netherlands](#) states: "The organization, composition and powers of the judiciary shall be regulated by Act of Parliament."

¹¹ [Article 2 of the Judiciary Organization Act](#).

¹² According to the Judiciary Organization Act, the court of first instance has the jurisdiction to hear all legal claims and applications related to civil law, administrative cases, all criminal cases, and tax cases.

¹³ If one of the involved parties claims that the judgment of the court of first instance is incorrect, he may appeal to the Court of Appeal in whose judicial territory the court of first instance is located. In most cases, it is possible to contest the Courts of Appeals decision by appealing in cassation to the Supreme Court of the Netherlands.

¹⁴ The Supreme Court examines whether the lower court observed proper application of the law in reaching its decision. At this stage, the facts of the case as established by the lower court are no longer subject of discussion.

¹⁵ [Article 1 to Article 12 of the Judiciary Division Act](#).

¹⁶ [Article 41, paragraph 1, of the Judiciary Organization Act](#).

¹⁷ The General Administrative Law Act (*Algemene wet bestuursrecht*) governs the review of administrative decisions. This Act governs the relations between government and individuals, government actions, the proceeding by which government policies ought to be implemented, the proceeding by which individuals can challenge the government orders and the way to lodge appeals against administrative decisions with the courts.

¹⁸ The civil law area handles cases not specifically allocated to the judges of small claims sub-division.

¹⁹ The judges of the criminal law area deal with all criminal cases which do not come before the judges of the small crime sub-division. These cases can be heard by a single judge or in a bench of three judges, which deals with more complex cases and all cases in which prosecution demands a sentence of more than one year's imprisonment.

²⁰ It is relatively uncomplicated for citizens to have their case heard in the small claims division. This conveys that they have the right to argue their own case and do not need a lawyer to represent them in the court. In terms of civil law, all legal actions with regard to rents, hire purchases employment and all conflicts involving an amount under € 25,000 have to be brought to the small claims sub-division.

²¹ In terms of criminal law, the small crime judge only deals with the minor offences. Often, these are cases in which the police or the public prosecutor has proposed a settlement and the accused one has refused to accept the proposal. In this case, the small crime judge should deliver an oral judgement immediately after the hearing.

The management board is responsible for the day-to-day management and the organization of the court.²²

Two or more district courts reside under the jurisdiction of a Court of Appeal. There are five Courts of Appeal²³, situated at Amsterdam, The Hague, Arnhem, Leeuwarden and 's-Hertogenbosch.

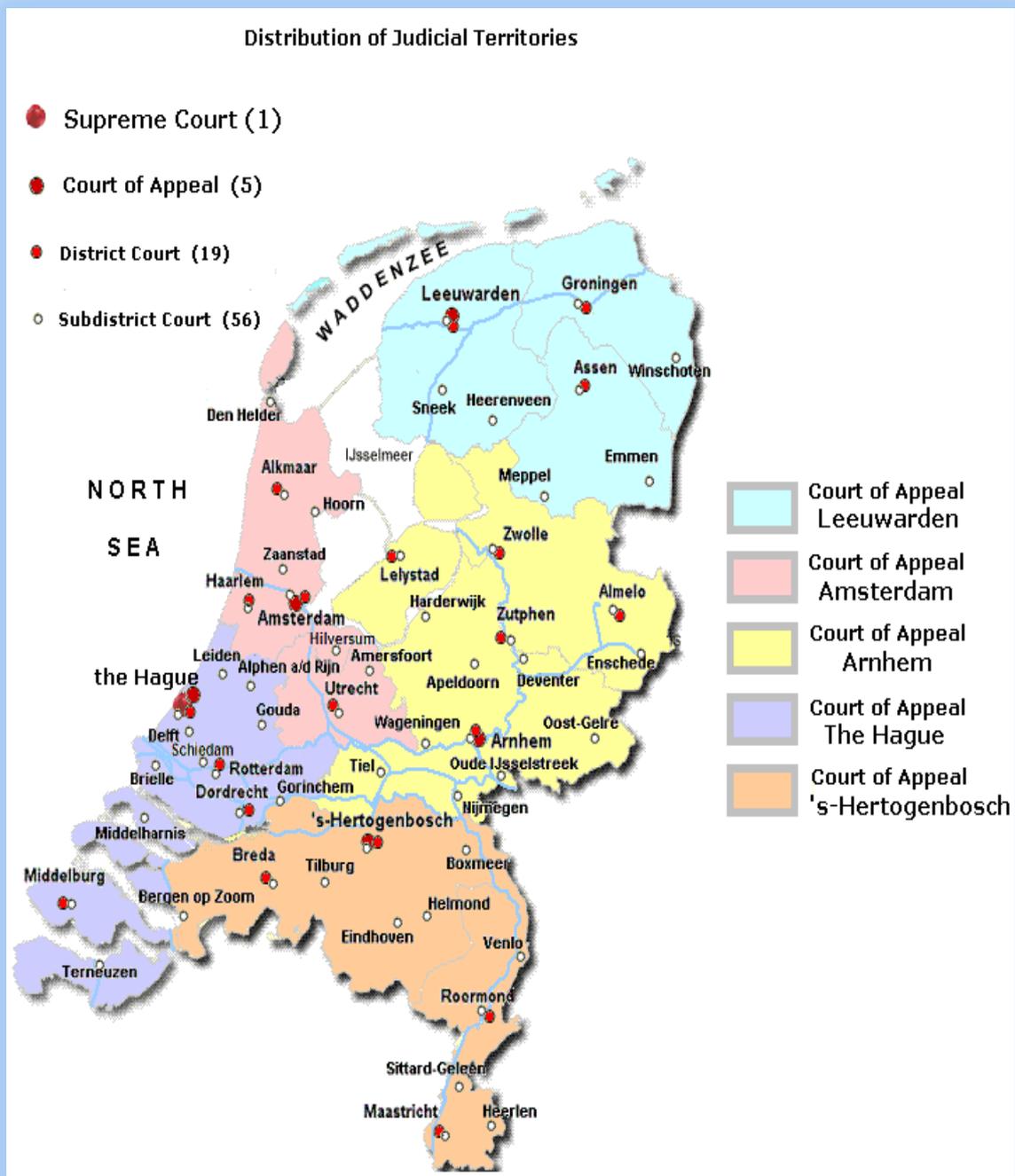
There is one Supreme Court, situated at The Hague²⁴. Figure 1 illustrates the current court map.

²² Article 23, paragraph 1 of the Judiciary Organization Act.

²³ Article 1 to Article 12 of the Judiciary Division Act.

²⁴ Article 77 of the Judiciary Organization Act.

Figure 1: Current court map



1.2. Starting point

On July 13, 2012 WHGK was published.²⁵ This Act revises the current court map. The purpose of this Act is to maintain a high degree of quality of justice and to improve court efficiency. In order to examine the relation between WHGK and its purposes, it is important to understand the differences and the development in output, productivity and court efficiency. According to the judicial finance system, there is a fixed price per type of case for the next three years.²⁶ To have a proper analysis, it is important to gain insight into the background and the indicator(s) which may influence court efficiency. In addition, the question concerns the optimal organizational structure for the courts. The legislator has chosen to change the court map. Although, the desirability of WHGK is not an issue²⁷, an interesting question is whether the implementation of WHGK helps to improve court efficiency.

1.3. Main problem and issues

This thesis examines:

Can the implementation of the Act to change the court map (hereafter: WHGK) help to improve court efficiency?

Concerning this main question, the way that WHGK is evaluated, will be explored in the context of the manner by addressing the following sub-questions:

1. What does the current court map look like?
2. How will the current court map change after the implementation of WHGK?

²⁵ See note 2 above.

²⁶ Article 12 Besluit van 28 januari 2005, houdende nieuwe regels inzake de financiering van de rechtspraak in verband met het invoeren van een baten-lastenstelsel en het verrekenen van productiever schillen ([Besluit financiering rechtspraak 2005](#)).

²⁷ Raad voor de Rechtspraak, *Eindrapport Commissie Van der Winkel: goede rechtspraak door sterke regio's*, 14 September 2006.

3. To what extent is there a relation between court efficiency and the change of the court map?
4. Can the new legislation, given the change in the court map, accommodate a better court efficiency?

In order to answer these questions, I will use the annual reports of the courts from 2002 to 2011 for a comprehensive analysis. The focus of this analysis will be on the district courts. Since there is limited data available, the last question could only be answered by looking to the past in order to predict the future. Undoubtedly, this analysis will leave many other questions about differences in court efficiency unanswered.

1.4. Thesis structure

This thesis is structured as follows:

- Chapter 2 describes the history and the implementation of WHGK.
- Chapter 3 gives a delineation of the theoretical framework. Two important tools for this comparison are the reports of the Netherlands Institute for Social Research (hereafter: SCP)²⁸ and the APE report.²⁹ These reports have examined the output and the productivity of the courts.
- Chapter 4 gives a delineation of the way in which the research is conducted
- Chapter 5 describes the empirical results of previous research. Particularly, it focuses on the APE report and the SCP reports of 2007 and 2010.
- In chapter 6 the results of the data analysis are presented. The data were collected and then processed in response to the issues posed in this chapter.

²⁸ Raad en Sociaal Cultureel Planbureau, *Rechtspraak: productiviteit in perspectief*, Den Haag: april 2007 and B. Kuhry, F. de Kam, A. van der Torre, F. van Tulder, E. Eggink, E. Pommer, J. Blank, L. Herweijer, *Waar voor ons belastinggeld? Prijs en Kwaliteit van publieke diensten*, Sociaal en Cultureel Planbureau, januari 2012.

²⁹ R. Goudriaan & R.S. Halbersma, *Rechtspraak en productiviteit: een internationale verkenning*, Aarts De Jong Wilms Goudriaan Public Economics (APE), 2003.

- Chapter 7 discusses the impacts of WHGK on court efficiency.
- Chapter 8 summarizes and concludes this thesis.

2. History of WHGK

2.1. Introduction

On July 13, 2012 WHGK was published.³⁰ This Act changes the current court map. This change means that the number of courts will be reduced. The current court map shows that there are nineteen district courts and five Courts of Appeal. WHGK reduces these numbers to ten district courts and four Courts of Appeal. This Act will enter into force on January 1st, 2013.³¹ Section 2.2. describes the background of WHGK and outlines the reasons why the legislator has chosen to change the court map. Section 2.3. gives the main features of the Minister's policy concerning the court map. Section 2.4. focuses on WHGK and this chapter ends with a conclusion in section 2.5.

2.2. Background of WHGK

In March 2002, the Agenda of the judiciary 2002 - 2005, titled "Continuity and Renewal", was published.³² The purpose of this strategy document was to establish a judicial policy for the coming years.³³ It is worth mentioning that many activities to implement the policy have nowadays a permanent place in the regular activities and annual plans of the courts and the Council for the Judiciary. During the implementation of the first Agenda³⁴, the number of the inflow of the cases in the courts increased explosively.³⁵ Nevertheless, the courts have succeeded to keep up with the increasing number of cases and have prevented backlogs. However, this did not shorten the processing time.³⁶ Therefore, decreasing the processing time remained the priority for the courts and

³⁰ See note 2 above.

³¹ See note 3 above.

³² Raad voor de Rechtspraak, '*Agenda voor de rechtspraak 2002-2005: continuïteit en vernieuwing*', March 2002.

³³ See <http://www.rechtspraak.nl/Organisatie/Raad-Voor-De-Rechtspraak/Agenda-van-de-Rechtspraak-2011-2014/Pages/default.aspx>, undated.

³⁴ See note 32 above.

³⁵ Raad voor de Rechtspraak, '*Jaarverslag 2006*', undated.

³⁶ Raad voor de Rechtspraak, '*Jaarplan voor de rechtspraak 2004*', undated, pp.5-8.

the Council for the Judiciary.³⁷ Another noteworthy component or highlight was the question regarding the desirability and the necessity of specialization of the courts.³⁸ Discussions concerning this subject focus primarily on a structural collaborative relationship between courts.³⁹ Thus, besides the decreasing of processing time, specialization was added to the Agenda.⁴⁰

In July 2004, the Agenda of the judiciary 2005 - 2008 was published.⁴¹ This second strategy document mentions amongst others objectives as: (a) safeguarding the judicial institutional principles as independence, impartiality and integrity, (b) court specialization and standardization of processing time, (c) promoting uniformity in judiciary and (d) increasing judicial transparency.⁴² The annual plans of the courts and the Council of the Judiciary of 2005⁴³, 2006⁴⁴ and 2007⁴⁵ were based on this document. Since the objective "court specialization and standardization of processing time" is relevant for this thesis, the following provides insight into the implementation of this objective:

- *Court specialization and standardization of processing time:* preventing court delay was, and is, important to the courts. They have taken many initiatives to achieve this objective. For example, the annual report of 2006 mentions that the measurement of processing time has been standardized.⁴⁶ Consequently, this annual report indicates for the first time the average of processing time of case related to criminal law.⁴⁷ In spite of the initiatives, the objective of establishing a standard processing time for all cases

³⁷ Raad voor de Rechtspraak, '*Jaarplan Rechtspraak 2005*', undated, pp.10-11;

³⁸ *Ibid*, 12.

³⁹ F. van Dijk and F. Lauwaars, 'Is modernisering ook verbeteren?', *Justitiële verkenning* 2003, vol. 1, no. 3, pp. 121-132.

⁴⁰ Raad voor de Rechtspraak, '*Agenda voor de rechtspraak 2005-2008*', July 2004.

⁴¹ *Ibid*, 19.

⁴² *Ibid*, 25.

⁴³ See note 37 above.

⁴⁴ Raad voor de Rechtspraak, '*Jaarplan 2006*', undated.

⁴⁵ Raad voor de Rechtspraak, '*Jaarplan 2007*', undated.

⁴⁶ Raad voor de Rechtspraak, '*Jaarverslag 2006*', undated, pp. 7-8.

⁴⁷ *Ibid*, p.8.

was not achieved, because of the complexity and diversity of cases.⁴⁸

This Agenda, on top of that, mentions four strategic questions. These are:

- a. Which method is the best for the organization of the judiciary in order to realize court efficiency?
- b. What is the ideal proportion for the division of the court map and should the current court map be adjusted?
- c. Should the supervisory and non-judicial duties be part of the judiciary?
- d. Can the involvement of citizens be improved?⁴⁹

Because of the subject of this thesis, only question b will briefly be addressed. Concerning this question, the SCP has examined the productivity of the courts.⁵⁰ This report shows that the effect of the proportion of the division of court map on the court productivity is relatively low.⁵¹ Therefore, its conclusion was that in general there is no reason for changing the current court map and that the underperforming productivity and the limited opportunities for specialization can be solved by a structural collaborative relationship between courts.⁵²

In May 2009, the third Agenda of the judiciary 2008 - 2011 was published.⁵³ This document mentions four objectives: (a) a professional / an expert judiciary, (b) a reliable judiciary, (c) an effective judiciary and (d) a judiciary anchored in society.⁵⁴ The annual plans of the courts and

⁴⁸ Raad voor de Rechtspraak, '*Agenda voor de rechtspraak 2005-2008*', July 2004, pp.6-12.

⁴⁹ *Ibid*, 11.

⁵⁰ Raad en Sociaal Cultureel Planbureau, '*Rechtspraak: productiviteit in perspectief*', Den Haag: april 2007.

⁵¹ *Ibid*, 84.

⁵² *Ibid*, 20.

⁵³ Raad voor de Rechtspraak, '*Agenda voor de rechtspraak 2008-2011: onafhankelijk en betrokken*', July 2007.

⁵⁴ *Ibid*, 20.

the Council for the Judiciary of 2008⁵⁵, 2009⁵⁶ and 2010⁵⁷ were based on this document.

The Judicial Inspection Report of the Courts 2010 indicated that underperforming productivity⁵⁸ and the limited opportunities for specialization was still a problem.⁵⁹ It also noted that the objective concerning the organization of a structural collaborative relationship between courts on a voluntary basis was not realized.⁶⁰ In order to establish a structural collaborative relationship between courts, the legislator has chosen to change the court map.⁶¹

2.3. Policy

WHGK reforms the current court map. This Act notes that a revision of the current court map fits within a broader European trend.⁶² The reason for the revision is to increase the specialization and court efficiency in order to maintain a high degree of the quality of justice.⁶³ The Minister has indicated that the policy is to establish congruence in the divisions of the court map with police and public prosecution.⁶⁴ This policy is based on three priorities to maintain a high degree of quality of justice:

- *Congruent region*: one of the elements of the policy is to have a congruent region for the security and justice. According to the Minister, when the regions of police, public prosecutors and judiciary are tied together, these organizations will be more efficient and effective.

⁵⁵ Raad voor de Rechtspraak, '*Jaarplan Rechtspraak 2008*', 21 december 2007.

⁵⁶ Raad voor de Rechtspraak, '*Jaarplan Rechtspraak 2009*', 30 januari 2009.

⁵⁷ Raad voor de Rechtspraak, '*Jaarplan Rechtspraak 2010*', 4 februari 2010.

⁵⁸ Raad voor de Rechtspraak, '*Rapport Visitatie Gerechten 2010*', 1 July 2010, p. 55.

⁵⁹ *Ibid*, 54.

⁶⁰ *Ibid*, 54-55.

⁶¹ Wet van 12 juli 2012 tot wijziging van de Wet op de rechterlijke indeling, de Wet op de rechterlijke organisatie en diverse andere wetten in verband met de vermindering van het aantal arrondissementen en ressorten (Wet herziening gerechtelijke kaart); memorie van toelichting (TK 2010-2011, 32 891, nr. 3).

⁶² European Commission for the Efficiency of Justice, *European Judicial Systems*, 2008.

⁶³ See note 61 above.

⁶⁴ Rechtstaat en rechtsorde; brief van de Minister van Justitie over het kabinetsstandpunt inzake de evaluatie van de modernisering van de rechterlijke organisatie, 19 december 2008, (TK 2008-2009, 29 279, nr. 85).

- *Indication of court location*: regarding the indication of the court location, there has been chosen for the capitals of the provinces and the ten largest municipalities in the Netherlands. Another criterion for the indication of the court locations is the access to justice and continuity of courts.
- *Changing the court map*: specialization and expertise require a larger volume of cases, staff and resources. Because the courts do not meet these requirements, changing the court map is the proper tool to improve the specialization and expertise in the courts. The consequence of changing the court map is that one or more current divisions will share the same management.⁶⁵ According to the Minister, there are 150 managers for 2000 magistrates and 6500 non-adjudicatory personnel.⁶⁶

2.4. WHGK

In 2012, the legislator passed WHGK⁶⁷, a coordinated and general approach to contribute to improving the quality of justice and the efficiency of courts. Components of this law include:

- changing the current court map;
- the creation of authority that court locations will be designated by order of Council of Judiciary;
- changes in the number of Board of Director members;
- applying of the new division to the distribution of the regional units of the national police and public prosecution.⁶⁸

The idea for developing an Act to revise the current court map got more support from the majority of the members of the Lower House after they

⁶⁵ See note 27 above.

⁶⁶ See note 64 above.

⁶⁷ See note 2 above.

⁶⁸ See note 61 above.

took a vote on a motion concerning changing the number of district courts from nineteen to ten.⁶⁹

This thesis provides data from 2002 to 2011 concerning the court efficiency. Previous reports and more information about the court efficiency will be addressed in chapters 5 and 6.

2.5. Conclusion

In order to establish a structural collaborative relationship between courts, the legislator has passed the WHGK. The components of this law include: (a) changing the current court map, (b) the creation of authority that court locations will be designated by order of Council of Judiciary, (c) changes in the number of Board of Director members and (d) application of the new division to the distribution of the regional units of the national police and public prosecution. The legislator has chosen to change the current court map in order to improve court efficiency⁷⁰ and maintain a high degree of quality of justice⁷¹. In the next chapter, I will deal with the theoretical framework.

⁶⁹ Stemming over een motie ingediend bij het debat over herziening van de gerechtelijke kaart te weten: de motie-Heerts c.s. over vormen van tien Nieuwe rechtsgebieden in de herziene gerechtelijke kaart (29 279, nr. 103), 17 februari 2010, ([Handelingen 2009-2010, nr. 57, p. 5237](#)) and [Wet van 12 juli 2012 tot wijziging van de Wet op de rechterlijke indeling, de Wet op de rechterlijke organisatie en diverse andere wetten in verband met de vermindering van het aantal arrondissementen en ressorten \(Wet herziening gerechtelijke kaart\)](#); vergadering van de vaste Commissie voor VenJ; korte aantekeningen, 23 september 2011.

⁷⁰ [Press release Rijksoverheid.nl, New judicial map to improve the efficiency of the judicial system, 17 December 2010.](#)

⁷¹ See note 61 above.

3. Theory

In this chapter, I will outline the abstract and theoretical factors that have shape the sundry decisions that I have made and which determine the choice of analyses, background materials and theories. This chapter enable readers and examiners to follow the arguments I have used. Consequently, this chapter mentions what variables have been measured and to what statistical relationships look for.

3.1. Introduction

Investigating court (in)efficiency involves the following questions:

1. *At the judges level:* given a litigant with a specific need or set of needs, is the chosen treatment strategy maximizing the litigants value given the resources used, or are there additional strategies that can yield greater utility given the resources used?
2. *At the organizational level:* are current court methods for organizing and producing maximizing the benefits, or can the benefits be changed by choosing other methods or other ways of organizing the court production?
3. *At the societal level:* is the current mix of courts (i.e. being adjudication) maximizing the benefits, or can this be improved by producing a different mix of different services? Also, are current spending on courts maximizing the benefits, or can the benefits increase by spending less on courts and more on something else (such as education, the (amount of) judges or IT)?

To investigate these questions, empirically and quantitative data of (in)efficiency are needed. The data should concern topics as court input, output and value. Most of the data already exist. The challenge is to combine them into a comprehensive and meaningful analysis regarding the court efficiency.

In this chapter, I will explain the theoretical framework I have utilized in pursuing this aim and outline the methods. Given the scope of material I must account for, this framework is interdisciplinary, drawing on paradigms from social sciences, performance studies, professions and applied sciences.

In the initial section of this chapter I will briefly address the selected analytical methods. Then I will discuss the features of the research framework. Section 3.4. provides a set of definitions for terms that are relevant to communication and empirical study of court (in)efficiency. Section 3.5. lays out the elements of the research framework. After outlining the research framework, I will conclude with a brief note of the practical difficulties encountered during this thesis.

3.2. Selected analytical methods

In literature, academics use different methods to examine output and productivity. These have been broadly categorized into three groups:

1. Classic data analysis;⁷²
2. Parametric regression analysis;⁷³
3. Non-parametric analysis.⁷⁴

4.2.1. Classic data analysis

Classic data analysis is based on comparisons of index numbers like the costs or the used resources per disposed case, the number of disposed cases per full-time equivalent (hereafter: FTE) and so on. Given the lack of an absolute standard for the definitions as efficiency, productivity and output, this method is based on a standard of comparing the data at a

⁷² W.W. Hsieh, '*Machine Learning Methods in the Environmental Science*', University of British Columbia, Vancouver, July 2009.

⁷³ A. Yatchew, '*Semiparametric Regression for the Applied Econometrician*', University of Toronto, December 2003.

⁷⁴ W.J. Conover, '*Practical Nonparametric Statistics*' (Wiley Series in Probability and Statistics), Archives Books, Inc., 1999.

specific time. This kind of analysis has a signalling effect⁷⁵ and does not give any information about the developments or the differences between the courts. Furthermore, the productivity measurements often give different images of the results.⁷⁶

4.2.2. Parametric regression analysis

Comparing to the classic data analysis, the parametric regression analysis of the production structure offers more insight into the characteristics of the structure⁷⁷, such as the synergistic effects⁷⁸ and the factors that can influence the productivity. The parametric regression analysis is based on the concept of the production function (*productiefunctie*)⁷⁹ and the cost function (*kostenfunctie*)⁸⁰. The production function describes the relation between the output and the input.⁸¹ The cost function describes the relation between output and the price of the resources.⁸² By using the cost function, it is relatively simple to analyse the development of a large number of different categories of cases.⁸³ Thus, relatively limited number of parameters summarizes the main economic characteristics of the production structure.⁸⁴

⁷⁵ P. Diaconis, 'Theories of Data Analysis: From Magical Thinking Through Classical Statistics' in D.C. Hoaglin, F. Mosteller and J.W. Turkey, '*Understanding Robust and Explanatory Data Analysis*', New York: Wiley, 1985, pp. 1-36.

⁷⁶ See note 72 above.

⁷⁷ N.G.N. Prasad and S.R. Lele, 'Improved prediction in finite population sampling using convex combination of parametric and non-parametric models', *The Indian Journal of Statistics* 2010, vol. 72, issue 2, pp. 189-201.

⁷⁸ C. Mothe, U.T. Nguyen-Thi and P. Nguyen-Van, 'Synergistic effects of organizational innovation practices and firm performances', working paper no. 2011-32, CEPS INSTEAD, May 2011, pp. 1-30.

⁷⁹ F. Reyes-Santias, C. Cadarso-Suarez and M.X. Roderiguez-Alvarez, 'Estimating hospital services production function through flexible regression models', *Journal Mathematical and Computer Modelling: An International Journal* 2011, vol. 54, issue 7-8, pp.1760-1764.

⁸⁰ Joint Government/Industry Parametric Cost Estimating Initiative Steering Committee, '*Parametric Cost Estimating Handbook*', Joint Government/Industry Parametric Cost Estimating Initiative Steering Committee 1995.

⁸¹ www.econmodel.com/classic/terms/prodfcn.htm, undated.

⁸² <http://www.egwald.ca/economics/dualityproductioncost.php>, undated.

⁸³ G.H. Fisher, '*Cost Functions and Budgets: Cost Considerations in Systems Analysis*', Santa Monica: Rand Corporation, 1968, pp.237-249.

⁸⁴ See note 73 above.

4.2.3. Non-parametric analysis

In the past decades, the use of the non-parametric analysis has increased.⁸⁵ The non-parametric analysis makes use of programming techniques of research and management science.⁸⁶ The users of this method emphasize that it is relatively easy to analyse the output and the productivity of a large number of categories of cases without making any assumptions.⁸⁷ Another advantage of this method is that it does not depend on a specific parametric model to describe the production structure and the measured (in)efficiencies.⁸⁸ Naturally, there are two disadvantages. Firstly, like classic data analysis, this method is very sensitive to the quality of the used data. Secondly, this method provides a lot of information on the efficiency of individual courts which must be consolidated to one clear index number.⁸⁹

3.3. Features of research framework

Court (in)efficiency has been an area of research by academics and various stakeholders such as SCP⁹⁰ and APE⁹¹. However, much of the reports presented in the literature is fragmented, and focuses on the production of specific court output and services without a general theoretical and/or methodological framework.⁹² The current research

⁸⁵ S. Gracia, D. Molina and M. Lozano, 'A study on the use of non-parametric tests for analyzing the evolutionary algorithms' behaviour: a case study on the CEC'2005 Special Session on Real Parameter Optimization', *Journal of Heuristics* 2009, vol. 15, issue 6, pp. 617-644.

⁸⁶ A.C. Worthington, 'Frontier Efficiency Measurement in Healthcare: A Review of Empirical Techniques and Selected Applications', *Medical Care Research and Review* 2004, vol. 61, issue 2, pp. 1-36.

⁸⁷ See note 77 above.

⁸⁸ See note 74 above.

⁸⁹ See note 74 above.

⁹⁰ See note 28 above.

⁹¹ See note 29 above.

⁹² [J.R.A. Verwoerd and P.A.J.Th. van Teeffelen, 'De rechter aan het werk: overbelast of onderbenut?', Staatsuitgeverij, Den Haag, WODC 54, 1985](#); in page 11 to 14 is explained that Verwoerd and Teeffelen use the classic data analysis to establish the court output, input, costs and workload; F.P. Tulder & A.C. Spapens, 'Doelmatig rechtspreken', Sociaal en Cultureel Planbureau, Rijswijk, SCP 80, 1990: they use the classic data analysis and the parametric regression analysis based on the concept of the cost function to establish the staff expenses; F.P. van Tulder, *Van misdaad tot straf een economische benadering van de strafrechtelijke keten*, Sociaal en Cultureel Planbureau, Rijswijk, SCP 21, 1994: in pages 18 to 21 is explained that Van Tulder uses the parametric regression analysis based on the concept of the Yield production to establish the court output and input; Raad en Sociaal Cultureel Planbureau, *Rechtspraak: productiviteit in perspectief*, Den Haag: april 2007 and B. Kuhry, F. de Kam, A. van der Torre, F. van Tulder, E. Eggink, E. Pommer, J. Blank, L. Herweijer, 'Waar voor ons belastinggeld? Prijs en Kwaliteit van publieke diensten', Sociaal en Cultureel Planbureau, januari 2012 use the classic data analysis, the parametric regression analysis and the non-parametric regression analysis to establish the court efficiency.

literature in court (in)efficiency fails to provide a ready approach for evaluating (in)efficiency in previously un-studied areas or aspects of courts.⁹³

APE had prepared a comprehensive review of the scholars and proprietary literature on (in)efficiency (measures). It also identified the gaps in theoretical, methodological and empirical knowledge in court (in)efficiency.⁹⁴ APE concludes that investigating the court efficiency by making a case-study in combination with interpreting the indicators provides more perspective operational results of the court than using the econometric methods.⁹⁵ As part of this framework, it is relevant to analyse thoroughly to which extent there are differences in productivity and output of individual courts. After analysing these differences, it is important to identify the practice that seems to work successfully. In general sense, the APE refers to the best practice as the most efficient way for the courts.⁹⁶ Thus, the court that uses the least resources to create the highest quality output is the best practice.⁹⁷ For more details on the results of the APE report, I refer to chapter 4. However, I would like to highlight the following key findings from this report:

- Outputs are not conceptualized and operationalized. The measurement of output is limited to measuring the staff expenses. Consequently, the output does not represent the influences of IT and other used resources to dispose a case.⁹⁸
- Empirical models of court (in)efficiency have not explicitly taken into account the quality of justice or the quality of input. Many existing measures, particularly those who were developed in other countries than the Netherlands, are symbolic efficiency measures. These measures rely solely on claims-based cost of court

⁹³ See note 28 above.

⁹⁴ See note 29 above.

⁹⁵ R. Goudriaan & R.S. Halbersma, '*Rechtspraak en productiviteit: een internationale verkenning*', Aarts De Jong Wilms Goudriaan Public Economics (APE), 2003, p.3-4.

⁹⁶ *Ibid*, 14.

⁹⁷ *Ibid*, 24.

⁹⁸ *Ibid*, 40.

measurement systems and typically report relative costs of the judges, but fail to account for quality of justice or the court output.⁹⁹

- Social (in)efficiency¹⁰⁰ is not addressed in the empirical models of (in)efficiency.¹⁰¹

Re-phrasing these gaps positively:

- Models of (in)efficiency should explore the use of various measures of court output (e.g. disposing cases, hours spent on case, the number of cases that lodge an appeal).¹⁰²
- Models of (in)efficiency should account for quality and stakeholder's preferences (e.g. the duration of cases, the readability of a court's judgement).¹⁰³

It can be concluded from the APE report that no systematic and rigorous process has been done to develop and change the court (in)efficiency. The APE also concludes that the measurements concerning changing the court sizes have methodological limitations that should be addressed, such as: lack of accounting for the court output and lack of determining court efficiency. Moreover, the former concerns are relevant to cost efficiency and the court sizes.

In 2007, SCP and the Council for Judiciary have been engaged in independent, but convergent efforts to move towards a conceptual and

⁹⁹ *Ibid*, 41-43.

¹⁰⁰ Southern California Evidence-based Practice Center—RAND Corporation, "Identifying, Categorizing, and Evaluating Health Care Efficiency Measures," AHRQ Publication No. 08-0030, April 2008: "Efficiency for society as a whole, or 'social efficiency,' means that some stakeholder can be better off only if some other stakeholder is made worse off." In other words, social efficiency refers to Pareto optimality – a situation in which no one can be made better off without at least one person/actor being made worse off.

¹⁰¹ R. Goudriaan & R.S. Halbersma, '*Rechtspraak en productiviteit: een internationale verkenning*', Aarts De Jong Wilms Goudriaan Public Economics (APE), 2003, p.43-45.

¹⁰² Raad en Sociaal Cultureel Planbureau, '*Rechtspraak: productiviteit in perspectief*', Den Haag: april 2007, pp.34-37.

¹⁰³ *Ibid*.

methodological framework for measuring court (in)efficiency.¹⁰⁴ The principles and conceptual framework for measuring (in)efficiency as outlined by the APE¹⁰⁵ emphasize that measurement of efficiency should consider court output and the quality of justice, not simply the quantity of justice and the use of resources.¹⁰⁶ In summary, the emerging consensus among stakeholders is that "true" efficiency measurement cannot be understood without explicit consideration of quality.

Despite the advances that have been made by the Council for the Judiciary and the SCP¹⁰⁷, there remains no approach that systematically provides a way to operationalize and integrate the concepts that have been laid down by them into empirical measures of efficiency.

Considering its history, experience, and expertise in measure development, SCP is well positioned to help building upon the work of the Council for the Judiciary and APE to move towards the development of feasible, scientifically sound-measures or measurement strategies for court (in)efficiency. However, in its study of 2010, it does not seek to develop a framework for measuring court (in)efficiency.¹⁰⁸

This framework is intended to:

- Be consistent across or conceptually unify terms like efficiency and output.
- Be compatible with existing data and measures, stakeholder's preferences, court input and output.

¹⁰⁴ Raad en Sociaal Cultureel Planbureau, *'Rechtspraak: productiviteit in perspectief'*, Den Haag: april 2007, p.11.

¹⁰⁵ R. Goudriaan & R.S. Halbersma, *'Rechtspraak en productiviteit: een internationale verkenning'*, Aarts De Jong Wilms Goudriaan Public Economics (APE), 2003, p.40-43.

¹⁰⁶ See note 102 above.

¹⁰⁷ See note 28 above.

¹⁰⁸ B. Kuhry, F. de Kam, A. van der Torre, F. van Tulder, E. Eggink, E. Pommer, J. Blank, L. Herweijer, *'Waar voor ons belastinggeld? Prijs en Kwaliteit van publieke diensten'*, Sociaal en Cultureel Planbureau, januari 2012.

The purpose of the next sections is to: (1) propose standard definitions of key terms that could be used in discussions concerning the court (in)efficiency and (2) to propose a framework for measuring court (in)efficiency.

3.4. Defining terms

The purpose of this section is providing a set of definitions for terms that are germane to communication and empirical study of court (in)efficiency. In many cases, multiple definitions may already exist for the terms that follow. Whenever possible, I adopt an existing definition - either with, or without additional refinements - rather than create a new definition, because excess definitions and terms do no facilitate shared understanding.

4.4.1. Defining court production

Efficiency concerns production, which I define as the process by which one or more inputs are combined and transformed into outputs. Inquiry into efficiency may be directed at various levels of analysis, and various levels of production. In theory, one can evaluate the efficiency of a single court, a district court, Courts of Appeal and the judiciary in general. Within each level of analysis, one can evaluate the efficiency with, which one or more producer produces. Within each level of analysis, one can also evaluate the relative efficiency between two or more alternatives for producing a single product.¹⁰⁹ This refers to *productive efficiency*. Finally, one can evaluate whether the distribution of inputs among the courts provides the greatest benefit, or whether resources can be redeployed to produce a different combination of products to create greater output, refers to *allocative efficiency*.¹¹⁰

¹⁰⁹ M.J. Farrell, 'Journal of the Royal Statistical Society', *Journal of the Royal Statistical Society series A (General)* 1975, vol. 120, no. 3, pp.253-290.

¹¹⁰ H. Leibenstein, 'Allocative Efficiency vs. "X-Efficiency"', *American Economic Review* 1966, vol. 56, issue 3, pp. 392-415.

4.4.2. Defining court output

Although the government is still responsible for submitting the budget to the Lower House¹¹¹, the Council for the Judiciary allocates the budget to the courts.¹¹² Based on the negotiated agreement (*bestuursafspraken*) between the Council for the Judiciary and the courts, the Council for the Judiciary will allocate the budget between the courts.¹¹³ Since the negotiated agreement is solely based on the workload of the courts¹¹⁴, it contains terms concerning the output¹¹⁵. One of the terms specifies that there is one fixed price per type of case for the next three years.¹¹⁶ This means that the price per type of case per three years can be changed. These changes are reported in the annual reports of the Council for the Judiciary. Some examples of the ways output has been defined in the annual reports include the following:

- The annual report 2002 mentions the average processing time (*gemiddelde behandeltime*) per case. By multiplying the absolute number of disposed cases with the average processing time, the product is the rate of responding expressed in hours.¹¹⁷
- In 2003, the Council for the Judiciary changed this definition by adding the word *product* instead of disposed cases, since the word product has a much broader meaning. The reason for this change was that the courts provide services which cannot be considered as disposed cases.¹¹⁸ The same way of calculating the output or the production was used in 2004.¹¹⁹
- In 2005, the Council for the Judiciary changed this definition by adding the word caseload (*werklast*) instead of the average processing time, since there are differences between the average

¹¹¹ Article 99, paragraph 1 of the Judiciary Organization Act.

¹¹² Article 102 of the Judiciary Organization Act.

¹¹³ Article 91 of the Judiciary Organization Act.

¹¹⁴ Art. 1, sub c, Besluit financiering rechtspraak 2005.

¹¹⁵ E.g. art. 25 Besluit financiering rechtspraak 2005.

¹¹⁶ Art. 12 Besluit financiering rechtspraak 2005.

¹¹⁷ Raad voor de Rechtspraak, 'Jaarverslag van de Rechtspraak 2002', undated, p. 33.

¹¹⁸ Raad voor de Rechtspraak, 'Jaarverslag van de Rechtspraak 2003', May 2004, p. 19.

¹¹⁹ Raad voor de Rechtspraak, 'Jaarverslag van de Rechtspraak 2004', undated, p. 13.

processing time per case. The caseload is calculated by multiplying the absolute number of the product with the average processing time per case category (*gemiddelde behandeltime per zaakscategorie*). The average processing time per case category is based on the results of time tracking and cost capabilities of 1999 - 2001 including the time spent on disposing the case per sub-division of district court (*afhandeling van zaken bestede arbeidstijd per sector*).¹²⁰

- In 2006, the Council for the Judiciary changed this definition by replacing the word average processing time per case category to average standardized processing time per case category (*gemiddelde genormeerde behandeltime per zaakscategorie*). Therefore, the output was not calculated by the caseload, but by the standardized caseload.¹²¹
- In 2009¹²² and 2010¹²³, the Council for the Judiciary used the same method for calculating the standardized caseload and addressed that in comparison with the 2006 the actual average of processing time was changed.
- In 2011, the Council for the Judiciary did not explain the method for calculating the output as they did in the years before.¹²⁴ In the interest of completeness, the index number mentions that the production of the courts is classified according to the case category. In the district courts, there are six different categories.¹²⁵ The categories are divided into: (a) cases that have been handled by a single judge chamber, (b) cases that have been handled by a bench of three judges and (c) cases that have been disposed without a hearing. Because of the differences in cases, the Council for the Judiciary makes negotiated agreements with the courts about the

¹²⁰ Raad voor de Rechtspraak, 'Jaarverslag van de Rechtspraak 2005', May 2006, p. 12.

¹²¹ Raad voor de Rechtspraak, 'Jaarverslag van de Rechtspraak 2006', undated, p. 15.

¹²² Raad voor de Rechtspraak, 'Jaarverslag van de Rechtspraak 2009', April 2010, p. 31.

¹²³ Raad voor de Rechtspraak, 'Jaarverslag van de Rechtspraak 2010', undated, p. 30.

¹²⁴ Raad voor de Rechtspraak, 'Jaarverslag van de Rechtspraak 2011', May 2012, p. 71.

¹²⁵ These categories are: (a) civil cases, (b) cases concerning the administrative law, (c) tax cases, (d) cases concerning the immigration law, (e) criminal cases and (f) cases concerning the small claims or small crimes.

different type of cases. This agreement mentions an average standardized processing time per case category for the next three years.

- In its report, SCP chooses for a *constant* average standardized processing time per case category.¹²⁶

Since the definition of court output provided by the annual reports of 2009 and 2010 is recent, I adopt this term:

- Court outputs are the products of courts, calculated by the average standardized processing time per case category.

4.4.3. Defining court input

I adopt the definition of court input provided by SCP¹²⁷:

- Court inputs are the resources used to create a product.

I will distinguish between two categories of court input: labour and physical capital. *Labour* refers generally to everything that the judges put into production. This can include for example; the time spent executing a procedure, the time spent during a hearing, the time for education, or even the time spent researching appropriate strategies for disposing the case. In theory, labour can also encompass unobservable aspects of human task related activity, such as effort and bedside manner. *Physical capital* encompasses the durable and nondurable goods that are used in the production of disposing the case.¹²⁸

As the APE report notes, input can be measured as counts of resource units, relative value units, or monetized units (euros).¹²⁹

¹²⁶ Raad en Sociaal Cultureel Planbureau, '*Rechtspraak: productiviteit in perspectief*', Den Haag: april 2007, p.35.

¹²⁷ See note 102 above.

¹²⁸ F. Alcalá and F. Ciccone, 'Trade and Productivity', *International Macroeconomics 2001*, Center for Economic Policy Research, Discussion paper series no. 395.

¹²⁹ See note 102 above.

4.4.4. Defining court value

SCP defines court value as:

- Court value is a measure of a stakeholder's utility for a particular combination of quality and output.¹³⁰

I adopt the definition of court value as defined by SCP.

4.4.5. Defining productivity

Productivity is often expressed in terms of labour (*labour productivity*) and frequently defined as output per person employed. This definition does not take into account the contribution of other factors in the production of the output. An alternative measure of productivity that relates output to all other factors in the production of the output is *total productivity*.

APE¹³¹, the Council for the Judiciary¹³² and the SCP¹³³ use labour productivity (*arbeidsproductiviteit*) and total productivity (*totale productiviteit*). Labour productivity is the ratio between the output to the number of employees in FTE. The total productivity is the ratio between the output and the total court resources.

4.4.6. Defining efficiency

To begin any discussion about court efficiency, it is important to explicitly define what is meant by *efficiency*, given the multiplicity of definitions of

¹³⁰ B. Kuhry, F. de Kam, A. van der Torre, F. van Tulder, E. Eggink, E. Pommer, J. Blank, L. Herweijer, Waar voor ons belastinggeld? Prijs en Kwaliteit van publieke diensten, 11 Januari 2010 and F. van Dijk, 'Economisch belang van de rechtspraak', Raad voor de rechtspraak 2003.

¹³¹ See note 29 above.

¹³² Raad voor de Rechtspraak, 'Jaarverslag van de Rechtspraak 2002', undated, p. 35; Raad voor de Rechtspraak, 'Jaarverslag van de Rechtspraak 2003', May 2004, p. 11; Raad voor de Rechtspraak, 'Jaarverslag van de Rechtspraak 2004', undated, p. 20; Raad voor de Rechtspraak, 'Jaarverslag van de Rechtspraak 2005', May 2006, p. 16; Raad voor de Rechtspraak, 'Jaarverslag van de Rechtspraak 2006', undated, p. 18; Raad voor de Rechtspraak, 'Jaarverslag van de Rechtspraak 2007', mei 2008, p. 20; Raad voor de Rechtspraak, 'Jaarverslag van de Rechtspraak 2008', mei 2009, p. 32; Raad voor de Rechtspraak, 'Jaarverslag van de Rechtspraak 2009', April 2010, p. 34; Raad voor de Rechtspraak, 'Jaarverslag van de Rechtspraak 2010', undated, p. 32; Raad voor de Rechtspraak, 'Jaarverslag van de Rechtspraak 2011', May 2012, p. 47.

¹³³ See note 28 above.

the term currently in use in the different policy area. The term efficiency is sometimes used interchangeably and sometimes it refers to different things. This is even more complicated by the fact that various disciplines apply the term differently or in different contexts¹³⁴ The SCP reports define *court efficiency* as a measurement of the relation of the court cost associated with a specific level of performance measured with respect to the aims of quality.¹³⁵ Given the acceptance that SCP's definition has received¹³⁶, I will use the SCP definition as the foundation for defining efficiency:

- Court efficiency is a property of a production process that refers to maximizing court output produced from a set of court input, holding court output quality constant. For a given set of input, greater efficiency implies increased output. Less efficiency or inefficiency refers to smaller ratios of output to input. Likewise, holding output and quality of court output constant, using fewer or lower levels of input implies greater efficiency.

Given this definition, *productive efficiency* is achieved when output is maximized given a set of input. Productive efficiency can be defined "as producing goods and services for lowest cost".¹³⁷ This kind of efficiency is relevant in question pertaining to the production of output. However, there is a question of how best to allocate resources across production among this output in a manner that maximizes utility of all stakeholders.¹³⁸ *Allocative efficiency* refers to the allocation of resources across output that maximizes the utility of stakeholders in such a way that

¹³⁴ National Quality Forum, '*Measurement Framework: Evaluating Efficiency Across Episodes of Care*', December 2007; Thomas JW, Pacific Business Group on Health, '*Hospital Cost Efficiency Measurement: Methodological Approaches*', January, 2006; Southern California Evidence-based Practice Center—RAND Corporation, '*Identifying, Categorizing, and Evaluating Health Care Efficiency Measures*', AHRQ Publication No. 08-0030, April 2008 en A. Donabedian, 'The seven pillars of quality', *Arch Pathol Lab Med* 1990, 114-1118.

¹³⁵ See note 28 above.

¹³⁶ See note 61 above.

¹³⁷ <http://www.economicshelp.org/blog/2412/economics/productive-vs-allocative-efficiency/>, undated.

¹³⁸ *Ibid.*

no single stakeholder can be made better off without making at least one other stakeholder worse off.¹³⁹

4.4.7. Defining best practice

Several interrelated terms are used in the literature to refer to best practice. They include terms as "best practice", "good practice" and "smart practice". These terms are sometimes used interchangeably and sometimes they refer to different things. These terms are even more complicated by the fact that various disciplines apply the terms differently or in different contexts.¹⁴⁰ Myers, Smith and Martin take a closer look at the research on best practices and its application in the field of public affairs. After conducting and identifying two approaches - e.g. quantitative/microeconomic and qualitative/case study - in best practice research, they note that the purpose of identifying good practice in private sector is in many ways contrasting to the same purpose in the public sector. They state that there is no consensus on what best practice is or how best practice research should be conducted.¹⁴¹ Some examples of the ways best practice has been defined in literature include the following:

- Helms indicates that in a general sense, the term best practice refers to the most efficient way to produce.¹⁴² This means the fastest method that uses the least resources to create the highest quality output is the best practice.¹⁴³
- Bretschneider, Wu and Marc-Aurele examine the underlying assumptions associated with best practices research. They indicate that the most typical process for generating an outcome requires

¹³⁹ *Ibid.*

¹⁴⁰ S.M. Myers, H.P. Smith and L.L. Martin, 'Conducting best practices research in public affairs', *International Journal of Public Policy* 2004, vol.1, no.4, pp.367-378; M.M. Helms, 'Encyclopedia of management', Thomson Gale, University of Michigan, 2006, pp. 38-40; S. Bretschneider, F.J. Marc-Aurele and J. Wu, 'Best Practices Research: A methodological Guide for the Perplexed', *Journal of Public Administration Research and Theory* 2004, vol. 15, no. 2, pp. 307-323; A. Darnay & M.D. Magee, 'Encyclopedia of Small Business', Gale, 3rd Edition, 2006 and E.S. Overman and K.J. Boyd, 'Best Practice Research and Postbureaucratic Reform', *Journal of Administration Research and Theory* 1994, vol. 4, no. 1, pp. 67-84.

¹⁴¹ S.M. Myers, H.P. Smith and L.L. Martin, 'Conducting best practices research in public affairs', *International Journal of Public Policy* 2006, vol.1, no.4, pp.367-378.

¹⁴² M.M. Helms, 'Encyclopedia of management', Thomson/Gale, University of Michigan, 2006, pp. 38-40.

¹⁴³ http://www.encyclopedia.com/topic/Best_Practices.aspx, undated.

the use of resources (input) that once used for that purpose cannot be used for the generation of alternative outputs. Consequently, the term best practice implies that it is best when compared to any other option. Therefore, within an organization that produces multiple outcomes, resource utilization implies trade-off decisions and interdependence across outcomes.¹⁴⁴

- Encyclopaedia of Small Business specifies that best practice is business jargon arising from the management tool known as benchmarking. The underlying assumption of this term is that production and management processes are uniform enough.¹⁴⁵ Consequently, a best practice can be identified and then adopted more or less "as is" by another entities.¹⁴⁶
- Overman and Boyd link best practice to the new public management and note that the most precise definition of best practice is the selective observation of a set of exemplars across different contexts in order to derive more generalizable principles and theories.¹⁴⁷

Since the SCP seeks to identify the best or optimal process for attaining the highest efficiency and given the acceptance that SCP's definition has received¹⁴⁸, I will use the SCP definition as the foundation for defining best practice:

- It refers to the fastest method that uses the least resources to create the highest quality output.¹⁴⁹

¹⁴⁴ S. Bretschneider, F.J. Marc-Aurele Jr. & J. Wu, 'Best Practices Research: A methodological Guide for the Perplexed', *Journal of Public Administration Research and Theory* 2005, vol. 15, no. 2, pp. 307-323.

¹⁴⁵ S. Codling, '*Best Practice Benchmarking: A Management Guide*', Gower Publishing Ltd. 1992.

¹⁴⁶ A. Darnay & M.D. Magee, '*Encyclopedia of Small Business*', Gale, 3rd Edition, 2006.

¹⁴⁷ E.S. Overman & K.J. Boyd, 'Best Practice Research and Postbureaucratic Reform', *Journal of Administration Research and Theory* 1994, vol. 4, no. 1, pp. 67-84.

¹⁴⁸ See note 61 above.

¹⁴⁹ See note 28 above.

4.4.8. Classification of the courts in FTE

Figures 2 and 3 illustrate the classification of the courts in FTE of 2010 and their sizes. This qualification has also been used in the Index report of 2008.¹⁵⁰ These figures are needed, since the analysis focuses on comparing the productivity of the up scaled and downscaled courts in the court map to establish whether the output is affected by the change of the court sizes. As mentioned in chapter 1, the focus of the analysis is on the district courts. Since the court size of Courts of Appeal goes beyond the scope of this thesis, it will not be discussed.

Figure 2: Classification of the courts in FTE

	Small sized courts	Medium sized courts	Big sized courts
District Courts	< 350	350-500	> 500
Total	10	6	3
Courts of Appeal	< 150	150-300	> 300
Total	1	3	1

¹⁵⁰ Raad voor de Rechtspraak, 'De Rechtspraak Kengetallen 2008', OPT Opmeer: Den Haag, mei 2009.

Figure 3: Classification of the district courts in FTE in current court map

Size	Name	FTE
Small sized courts	Middelburg	145
	Assen	172
	Dordrecht	189
	Roermond	207
	Almelo	212
	Groningen	228
	Leeuwarden	230
	Zutphen	240
	Alkmaar	244
	Maastricht	300
Medium sized courts	Zwolle	371
	Breda	434
	Arnhem	444
	Utrecht	456
	Haarlem	468
	's-Hertogenbosch	477
Big sized courts	Rotterdam	686
	's-Gravenhage	885
	Amsterdam	886
	Total	7272
	Average	383

3.5. Framework for measuring court efficiency

In the features of research framework, I will outline that to there are two elements in the framework for measuring court efficiency. These elements are: (1) a model of stakeholder utility, which provides a basis for measuring stakeholder value and (2) a model of court production, which provides a basis for measuring outputs, inputs, and efficiency.

3.5.1. A model of stakeholder utility

Utility refers to the benefit or satisfaction that a stakeholder receives from the product.¹⁵¹ Utility is the amount of benefit or satisfaction that a stakeholder receives from court output.¹⁵² Many things can provide utility

¹⁵¹ D. Kahneman and A. Tversky, 'Choices, Values, and Frames', Cambridge University Press, first edition, 2000.

¹⁵² A. Robson and L. Samuelson, 'The evolution of decision and experienced utilities', *Theoretical Economics* 2011, vol. 6, pp.311-339.

to a stakeholder. A litigant, for example, can derive utility from justice, as well as from personal consumption of other goods and services. A judge, for example, may derive benefit or satisfaction from the services that he/she provides to the litigant, as well as from professional advancement and personal consumption. A court organization may derive benefits from the services it provides to its litigants or the services it renders to the society. The value of the product is measured by the amount that a stakeholder is willing to pay for that product.¹⁵³ Willingness-to-pay may be measured in terms of euro's.¹⁵⁴ In order to measure the value of any specific court product, one other product that provides benefits to the stakeholder must be defined.¹⁵⁵ Since the stakeholders derive utility from a single product, justice is an infinite value to the stakeholder, and there is no point in measuring its value.¹⁵⁶

3.5.2. A model of court production

Because efficiency is an attribute of production, measurement of efficiency requires some characterization of the production process, which I call a “model” of production. A model of production specifies how court output is produced from court input, and can be formulated at a very general level, or at a very specific level. Since court output and input can be measured in diverse ways using various metrics, I will use the SCP definition as the foundation for identifying the court production.

3.5.2.1. Court behaviour

In order to investigate court productivity, it is relevant to consider how financial incentives can influence the behaviour of a courts to deliver justice at a reasonable price.

¹⁵³ See note 156 above.

¹⁵⁴ Ch. Breidert, M. Hahsler and T. Reutterer, 'A review of Methods for Measuring Willingness-To-Pay', *Innovative Marketing* 2006, vol. 2, issue 4, pp. 8-32.

¹⁵⁵ *Ibid.*

¹⁵⁶ D. Kahneman and A. Tversky, '*Choices, Values, and Frames*', Cambridge University Press, first edition, 2000; A. Robson and L. Samuelson, 'The evolution of decision and experienced utilities', *Theoretical Economics* 2011, vol. 6, pp.311-339 and Ch. Breidert, M. Hahsler and T. Reutterer, 'A review of Methods for Measuring Willingness-To-Pay', *Innovative Marketing* 2006, vol. 2, issue 4, pp. 8-32.

Handy describes organizations as fascinating collections of people. According to Handy, the challenge is to make them productive and useful communities, which requires the use of power in its many guises.¹⁵⁷ Within this framework, Kingma notes that "the decision-making process, as the distribution of assets, including financial resources, is part of the power structure of systems, organizations and enterprises", that "using economic incentives and disincentives to direct the organization's behaviour is common practice".¹⁵⁸ The choice and implementation of remuneration and reward policies are increasingly recognised as affecting the delivery of product.¹⁵⁹ As yet however, the literature provides few data on their impact on the quality of justice. The aspect of quality goes beyond the scope of this thesis and it will not be discussed.

As mentioned before, the courts are reimbursed through a negotiated budget process.¹⁶⁰ The nature of the incentives in this payment arrangement resemble capitation, since the average standardized processing time per case category is fixed¹⁶¹ and the courts carry the risk for budget over-runs as well as retaining savings. Therefore, reimbursement through a negotiated budget process makes the courts attentive to their output, productivity and efficiency.¹⁶²

There are several assumptions in the economic theory about the behaviour of producers which is in line with the above mentioned concept. Each type of behaviour has its own algebraic description of the production structure. The classical economic theory describes different

¹⁵⁷ C. Handy, '*Understanding Organizations*', 4th Edition, Oxford University Press USA: 1993.

¹⁵⁸ M. Kingma, '*Can Financial Incentive Influence Medical Practice?*', *HRDJ* 1993, vol. 3, p. 121.

¹⁵⁹ See note 156 above.

¹⁶⁰ See note 26 above.

¹⁶¹ See note 117 above.

¹⁶² A.H.M. de Jong & D.L. Kabel, 'De rol van evaluaties in het begrotingsproces', *Justitiële Verkenning* 2005, vol. 31, pp. 100-110; Wijziging van de Wet op de rechterlijke organisatie, de Wet rechtspositie rechterlijke ambtenaren en enkele andere wetten in verband met de instelling van de Raad voor de rechtspraak (Wet Raad voor de rechtspraak); memorie van toelichting, undated ([TK 1999-2000, 27 182, nr.3](#)) and H.F.M. Hofhuis, 'Financiering van de rechtspraak en werklasmeting', *Trema* 2003, p. 90.

types of behaviour such as cost minimization (*kostenminimalisatie*), profit maximization (*winstmaximalisatie*) and yield maximization (*opbrengstmaximalisatie*).¹⁶³ Since it is expected that the producers respond to the ratio of the mutual process of various used resources, the main idea is that when there is a clear objective, the use of such additional information leads to more reliable conclusions concerning efficiency. Nevertheless, this economic theory stipulates a sufficient variation as a condition. Since there is no market price and the courts do not use targets as cost minimization or profit maximization, the classical economic theory is not applicable.¹⁶⁴

Therefore, in the further analysis concerning 2002 to 2011, the courts are approached as an institution under the constraints of the available budget which attempt to realize their (strategic) objective(s) within a certain minimum of quality of justice.¹⁶⁵

3.5.2.2. Theory of production functions

Production process involves the transformation of input into output. The court input primarily consists of labour and capital. The output is for example the number of disposed cases. In a production process, the courts take four types of decisions: (a) whether to produce or no, (b) how much output to produce, (c) what input combination to use and (d) what type of technology to use. This paragraph deals with the analysis of court's decision concerning (c). Since the analysis of other questions goes beyond the scope of this thesis, they will not be addressed.

Courts deal with different kind of cases. In order to produce, they need hearing locations, judges, support staff, computers, labour, paper and other factors. These items are called input or factors of production. The

¹⁶³ See note 28 above.

¹⁶⁴ *Ibid.*

¹⁶⁵ See note 50 above.

output is the delivered court services. In general, a given output can be produced with different combinations of inputs.¹⁶⁶ It shows the maximum output which can be obtained for a given combination of inputs.¹⁶⁷

Another possibility to investigate the input combinations is by using the frontier production function.¹⁶⁸ This function postulates the existence of inefficiencies of production in producing a particular output.¹⁶⁹ For a given combination of input levels, it is assumed that the realized production of a court is bound by the sum of a parametric function of known inputs.¹⁷⁰ This means unknown parameters and a random error.¹⁷¹ The greater the amount by which the realized production falls short of this frontier production, the greater the level of the inefficiency.¹⁷² Since there is not an unambiguous way to represent the court production structure, I will use the best practice - calculated by the SCP - as the benchmark for investigating the court efficiency. The best practice depends on the chosen robust estimation methods and can be used for mapping the efficiency differences in the courts. Consequently, inefficiency is the result of deviation from the best practice. This means that there is no absolute standard for efficiency.¹⁷³ Court efficiency is measured by a comparison of the court productivity with the existing best practice.¹⁷⁴ Figure 4 illustrates the relation between the output and the input of just one court product.¹⁷⁵ The vertical line of the graphic

¹⁶⁶ H. Morita and N.K. Avkiran, 'Selecting inputs and outputs in data envelopment analysis by designing statistical experiments', *Journal of the Operations Research Society of Japan* 2009, vol. 52, no. 2, pp. 163-173.

¹⁶⁷ *Ibid.*

¹⁶⁸ D.J. Aigner, and S.F. Chu, 'On estimating the industry production function', *American Economic Review* 1968, vol. 58, no. 4, pp. 826-839; D.J. Aigner, C.A.K. Lovell and P. Schmidt, 'Formulation and estimation of stochastic frontier production function models', *Journal of Econometrics* 1977, vol. 6, pp. 21-37; F.R. Forsund, C.A.K. Lovell and P. Schmidt, 'A survey of frontier production functions and their relationship to efficiency measurement', *Journal of Econometrics* 1980, vol. 13, pp. 5-25; G.E. Battese & T.J. Coelli, 'Frontier production functions, technical efficiency and panel data with application to paddy farmers in India', *Journal of Productivity Analysis* 1992, vol. 3, pp. 153-169.

¹⁶⁹ G.E. Battese & T.J. Coelli, 'A model for technical inefficiency effects in a stochastic frontier production function for panel data', *Empirical Economics* 1995, vol. 20, pp. 325-332.

¹⁷⁰ See note 172 above.

¹⁷¹ *Ibid.*

¹⁷² G.E. Battese & T.J. Coelli, 'A Stochastic frontier production function incorporating a model for technical inefficiency effects' op de website van une.edu.au.

¹⁷³ See note 174 above.

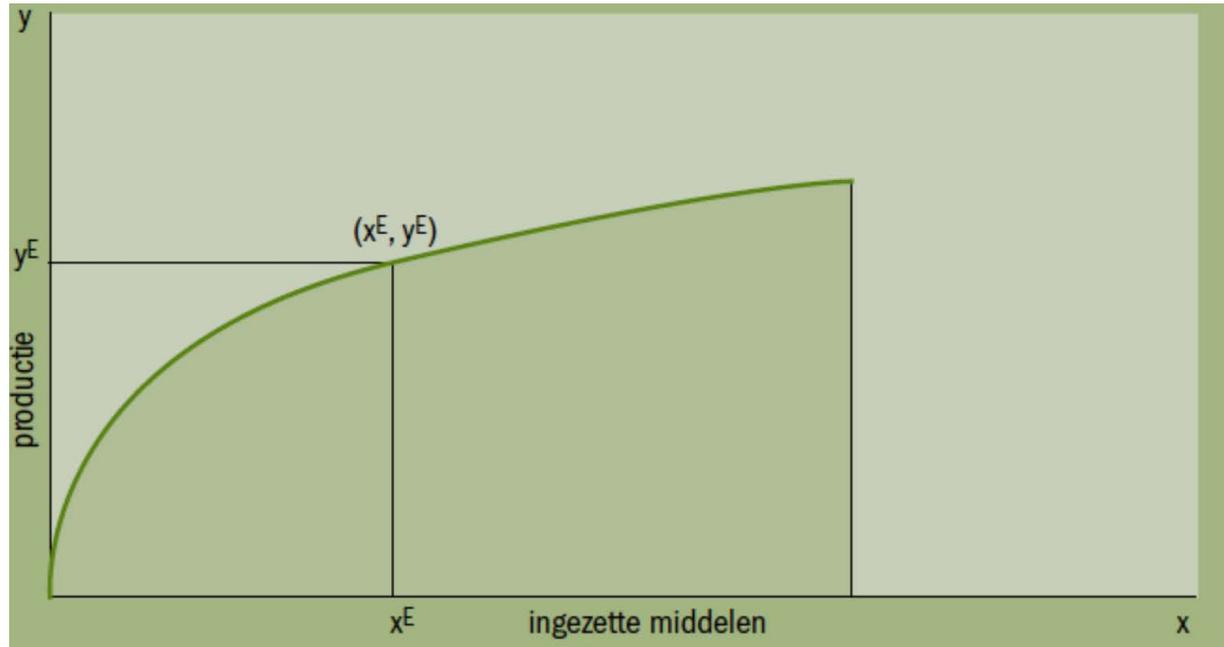
¹⁷⁴ See note 50 above.

¹⁷⁵ *Ibid.*, 44.

represents the output (y) and the horizontal line of the graphic stands for the input (x). The shaded part contains all input combinations. The upper limit (*bovengrens*) of the shaded part illustrates the best practice. This means that when the point (X^E, Y^E) is placed on the upper limit, it represents the best practice of that point.¹⁷⁶

¹⁷⁶ *Ibid.*

Figure 4: Relation between output (y) and input (x)



3.5.2.3. Specifying the production function

The SCP reports have specified the court production function. Given the acceptance that SCP's specification of the production function has received¹⁷⁷, I will use the SCP's court production function as the foundation for identifying the indicators which may influence the court efficiency. Figure 5 illustrates the court production function of the SCP.¹⁷⁸ Since the analysis and the explanation of the variables of this formula go beyond the scope of this thesis, they will not be addressed.

Figure 5: Court production function

$$\log Q = \sum_i \alpha_i \log X_i + \frac{1}{2} \sum_i \sum_j \alpha_{ij} \log X_i \log X_j + \sum_p \beta_p D_p + \sum_k \gamma_k V_k$$

For more details on the background of this court production function, I refer to the SCP report of 2007.¹⁷⁹ However, I would like to highlight the following (in)dependent variables of this court production function:

- Labour;

¹⁷⁷ *Ibid*, 45.

¹⁷⁸ *Ibid*.

¹⁷⁹ *Ibid*.

- Court production;
- Backlogs;
- Other indicators.

Labour

APE verifies that labour remains the most important input to court production. From all input factors, labour expenditure makes up a significant portion of total court expenditure.¹⁸⁰ For this reason, it should be measured accurately and consistently. The simplest estimation of labour input is a summation of hours of all staff. However, this does not take into account the heterogeneity of labour.¹⁸¹ The SCP¹⁸², the APE¹⁸³ and the Council for the Judiciary¹⁸⁴ deal with the heterogeneity of labour. This means that the court staffs with differing traits is treated as separate. The measurement of labour input in the court production process reflects the amount of FTE, time, effort and skills of the workforce.¹⁸⁵

Like SCP¹⁸⁶, this thesis distinguishes the labour input into two categories. The first category is the judges (*rechters/raadsheren*). The second category is the support staff (*ondersteuning*). Next to this distinction, it is relevant to take into account the age structure. To this end, there is a vast empirical literature examining the life cycle hypothesis. For example Jablonski investigates the general age-productivity relationship in the United States by using cross-sectional data.¹⁸⁷ Haltiwanger investigates this relationship by using longitudinal data.¹⁸⁸ Several studies investigate the relation between judicial productivity and age.¹⁸⁹ For example Posner

¹⁸⁰ See note 50 above.

¹⁸¹ *Ibid.*

¹⁸² *Ibid.*

¹⁸³ See note 29 above.

¹⁸⁴ See note 133 above.

¹⁸⁵ See note 28 above.

¹⁸⁶ *Ibid.*

¹⁸⁷ M. Jablonski, L. Rosenblum & K. Kunze, 'Productivity Age, and Labor Composition Changes in the U.S.', *Monthly Labor Review* 1988, vol. 111, no. 9, pp. 34-38.

¹⁸⁸ J.C. Haltiwanger, I.J. Lane and J. Spletzer, 'Productivity Differences Across Employers: The Roles of Employer Size, Age and Human Capital', *American Economic Review* 1999, vol. 89, no. 2, pp.94-98.

¹⁸⁹ M. Bhattacharya & R. Smyth, 'Aging and Productivity Among Judges: Some Empirical Evidence from the High Court of Australia', *Australian Economic Papers* 2001, vol. 40, issue 2, pp. 199-212; M. Bhattacharya & R. Smyth, 'The Determinants of Judicial Prestige and Influence: Some Empirical Evidence from the High Court of Australia', *Journal of Legal Studies* 2001, vol. 30., issue 1, pp. 223-252;

uses quality and quantity measures and notes that the productivity of judges of the U.S. Courts of Appeal declines with age, but this decline does not set in until the judges are at least over eighty years. Another consideration in his analysis is that in comparison with other academic professions, the productivity of judges shows a peak at a later age.¹⁹⁰

Kosma, using data on U.S. Supreme Court Justices, indicates that older appointees exert more influence (as measured by adjusted citations) than younger appointees. However, Bhattacharya and Smyth, using data on High Court of Australia Justices, note that younger appointees exhibit greater influence by the same measure.¹⁹¹ Bhattacharya and Smyth also explicitly study judicial productivity in a life cycle framework. Using adjusted citations as the productivity measure, they find support for the life cycle hypothesis among judges in Australia.¹⁹²

Court output

Concerning the ways that may calculate the court output, SCP and the APE state the following¹⁹³:

- The court output can be calculated by cases completed or the amount of given judgements. This numbers can be itemized to different case categories.
- The court output related to criminal law can be calculated by the amount of verdicts of guilty. Particularly, this number is used to illustrate the judicial chain and the value of judiciary in the society.
- Mostly, the measurement of court production fails to account for quality of justice and the complexity of a case. The court production function of SCP does not take into account the complexity of a case

[Influence of Supreme Court Judges', *The Journal of Legal Studies*1998, pp. 333-372](#); R. Smyth & M. Bhattacharya, 'How Fast Do Old Judges Slow Down? A Life Cycle Study of the Aging and Productivity in the Federal Court of Australia', *International Review of Law and Economics* 2003, vol. 23, issue 2, pp. 141-164.

¹⁹⁰R.A. Posner, Is the ninth circuit too large? A statistical study of judicial quality, *Journal of Legal Studies* 2000, vol. 29, nr. 2, pp. 711-719.

¹⁹¹ M. Kosma, 'Measuring the Influence of Supreme Court Judges', *Journal of Legal Studies*1998, pp. 367-369.

¹⁹² R. Smyth & M. Bhattacharya, 'How Fast Do Old Judges Slow Down? A Life Cycle Study of the Aging and Productivity in the Federal Court of Australia', *International Review of Law and Economics* 2003, vol. 23, issue 2, pp. 141-164.

¹⁹³ See note 28 above.

as an indicator which may influence the court efficiency. More research on this subject is needed.

- Several studies calculate the court output by using (non)-parametric regression analysis and indicate a limited number of type of cases. These studies are difficult to analyse, since they provide a lot of information on the court output which must be consolidated to one clear index number.

In its report, SCP chooses for a *constant* average standardized processing time per case category, since doing this differently will result in problems with interpretation of the court output.¹⁹⁴

Backlogs

The backlog number measures the pending caseload against the court capacity to dispose of its caseload during a given time period.¹⁹⁵ Another backlog index is the age of disposed cases.¹⁹⁶ This index allows a court to measure how quickly it is disposing its cases.

While, APE notes that there is no significant influence of backlogs on the efficiency differences of the studies¹⁹⁷, Van Tulder argues that the productivity of the criminal law cases can be influenced by the backlog index. Moreover, he indicates that the productivity of the criminal law cases depends on the inflow of the cases and the extent of the resources.¹⁹⁸

Concerning court efficiency, Weller and Block attempt to determine whether the increase in the backlogs may result into an extra boost in the costs. Unfortunately, their study did not lead to a clear interpretable

¹⁹⁴ See note 50 above.

¹⁹⁵ See note 133 above.

¹⁹⁶ See note 28 above.

¹⁹⁷ See note 29 above.

¹⁹⁸ F.P. van Tulder, 'Van misdaad tot straf een economische benadering van de strafrechtelijke keten', Sociaal en Cultureel Planbureau, Rijswijk, Sociale en Culturele Studies 21, 1994.

result.¹⁹⁹ In the same sense, APE notes that there is no correlation between the number of backlogs and the amount of the inflow of the cases, while Van Tulder finds indication that those factors may influence the efficiency in the cases concerning the criminal law.²⁰⁰ Notwithstanding, APE illustrates a couple of attempts to improve the court efficiency by reducing the court backlog.²⁰¹ However, the mentioned studies in APE do not define the term backlog. Yet, it is plausible that when the backlog occurs in an efficient court, decreasing the backlog has limited result on court efficiency. In such a case, an increase in staffing is preferable. When the backlog occurs in an inefficient court, it is desirable to increase court efficiency.²⁰²

Considering the results above, the SCP uses the court backlogs as part of court input. At the same time the SCP highlights that further research is needed to establish that the backlogs influence court output negatively.²⁰³

Other indicators

Duncombe and Miner indicate different kind of factors that may influence the productivity, e.g.: competition factors, size factors, organisational factors etc.²⁰⁴ The SCP takes into account the factors which may influence the court productivity. An example is the caseload. The SCP does not take into account factors as the quality of justice or other socio-economic factors.²⁰⁵ Further research of the impact of socio-economic factors on the court efficiency is needed.

¹⁹⁹ D. Weller & M.K. Block, 'Estimating the cost of judicial services', in: C.M. Gray, *The cost of crime*, Beverly Hills: SAGE publications, 1979, pp. 149-164.

²⁰⁰ R. Goudriaan & R.S. Halbersma, *Rechtspraak en productiviteit: een international verkenning*, Aarts De Jong Wilms Goudriaan Public Economics (APE), 2003 and F.P. van Tulder, *Van misdaad tot straf een economische benadering van de strafrechtelijke keten*, Rijswijk: Sociaal en Cultureel Planbureau (Sociale en Culturele Studies 21) 1994.

²⁰¹ See note 29 above.

²⁰² *Ibid.*

²⁰³ See note 50 above.

²⁰⁴ W.D. Duncombe, J. Miner and J. Ruggiero, 'Empirical Evaluation of Bureaucratic Models of Inefficiency', *Public Choice* 1997, no. 93, pp. 1-18.

²⁰⁵ See note 50 above.

3.6. Conclusion

In this chapter, I have moved from my main issue to the framework for measuring court efficiency. I explained a theoretical framework which illustrates the indicators which are relevant and/or important for court output, input and efficiency. From this, I have developed a refined definition of efficiency and best practice. In the concluding section, I have addressed the indicators of the court production function and have discussed the way in which I conducted fieldwork.

Next chapter will give a delineation of the way in which the research is conducted.

4. Method

This chapter portrays details of the research methodology adopted for this thesis. The first section introduces the literature review. Section 4.2. discusses briefly the framework. The next section highlights the data collection. Finally, this is followed by limitations and difficulties faced during data collection. This chapter ends with a conclusion.

4.1. Literature Review

The purpose of literature review is to acquire knowledge and develop understanding of the previous work related to the research topic. A literature review serves many important purposes, including establishing the need for the research, broadening the horizons of the researcher and preventing the researcher from conducting research that already exists.²⁰⁶ Aitchison²⁰⁷ gives more reasons, which include the following:

- to sharpen and deepen the theoretical framework of the research;
- to familiarize the researcher with the latest developments in the area of research;
- to identify gaps in knowledge, as well as weaknesses in previous studies;
- to discover connections, contradictions or other relations between different research results by comprising various investigations;
- to study the definitions used in previous works;
- to study the advantages and disadvantages of the research methods used by others, in order to adopt or improve on them in one's own research.

The literature review for this thesis was carried out to provide information relating to the background and context of the study.

²⁰⁶ G.R. Adams & J.D. Schvanenveldt, '*Understanding research methods*', University of Michigan, Longman 1985.

²⁰⁷ J. Aitchison, '*The Articulate Mammal: an introduction to psycholinguistics*', Taylor & Francis, 1998, p. 58.

Focussing on the topic of research, literature was reviewed from the following perspectives:

- The literature regarding the historical perspective and theoretical concepts of efficiency, best practices and up scaling, its levels, methods, and techniques were thoroughly reviewed. It helped in understanding the concept and significance of efficiency in organizations.
- The literature on organizations financed by public means illustrates that organizations are not trifling matter. Moreover, while there is no ideal way to structure an organization, some commonly accepted general principles can be identified.²⁰⁸ This last point applies to courts as well. In theory, there are at least a dozen different, sensible ways to organize the courts. Remarkably, though, in spite of clear differences in detail and even in organizational philosophy and culture, a great deal of similarity can be found in the organization of courts across the world. For example, a director of court of country A is likely to find counterpart with very similar responsibilities in country B.

4.2. Framework

The Netherlands has been chosen as the country of origin because it enacted legislations between 2001 and 2011, which rapidly adjusted the structure and governance of the court organization. Moreover, in 2012 it created WHGK.

At the starting time of this thesis, when thinking about the concept of this work, there were basic options to be chosen. From the beginning, it was apparent that the following concepts were central to this subject: court

²⁰⁸ United Nations, '*Handbook of statistical organization: a study on the organization of national statistical services and related management issues*', United Nations, New York, 1980, p.71.

efficiency, quality of justice, access to the justice, congruent region, accountability and judicial independence.

The notion was to choose one element of those mentioned above, and then to look at their relation as the foundation for this thesis. It was decided to examine whether WHGK can help to improve court efficiency. This thesis focuses on financial and organizational developments that have occurred since 2002. The changes in court organization on court productivity will be examined. This thesis has used data from leading research and annual reports of the Council for the Judiciary and other credible data sources available at the time of writing. The results can provide information for discussions in the field of organization, financing and quality management within the law. Furthermore, the empirical part of this thesis can contribute to the limited body of knowledge on approaches to court organization and its accountability to society.

4.3. Data Collection

Having formulated the subject and settle on which country to pore, it was time to state the research problem. It was then indispensable to study literature and the background of court organization. In terms of literature research, articles and books on constitutional theory, management and quality were gathered using the search engines from the Internet, the libraries of the universities, De Brauw Blackstone Westbroek and Raad voor de Rechtspraak. Policy and legislative documents were easily found on the government websites as www.overheid.nl, www.ape.nl and www.scp.nl.

When literature data was collected, different sources was used:

- EconLit and ABI Inform for articles published in economics related journals and the International Bibliography of the Social Sciences over social science related journals;

- Not officially published literature, such as working papers, research and memoranda.

However, a substantially formed collected literature was not relevant for the main issue of this thesis.

In order to get more insight into the determinants of court productivity, the reports of SCP²⁰⁹ have been used, since this organization has expertise in analysing the productivity in the public sector.²¹⁰ Another source is a limited note concerning the report of the committee Van der Winkel²¹¹. This note addresses the preliminary results of the indicators concerning the efficiency analysis and scale effects.²¹² Since the findings and the results of the existing research on the productivity are important, I have decided to use the results of the APE report.²¹³ Other used sources are the annual reports, fact sheets, and budget and year plan of the Council for the Judiciary. The information in these documents serves as one of the fundamentals of the analysis concerning court efficiency.

4.4. Limitations

Following this process, I had to find the answers to questions. Given the gaps in current erudition, it was needed to expand more exactly on what information was needed. The analysis focuses on comparing the productivity of the up scaled courts (*grote gerechten*) and the downscaled courts (*kleine gerechten*) in the current court map to establish whether the output is affected by the up scaling. To get a better impression of the scale effect after the implementation of WHGK, these findings will be compared with the frontier court of SCP.

²⁰⁹ See note 50 above.

²¹⁰ See note 27 above.

²¹¹ *Ibid.*

²¹² F. van Tulder, '*Rechtspraak en schaaleffecten*', Den Haag: Raad voor de rechtspraak, 2006.

²¹³ See note 29 above.

Obviously, an alteration in court efficiency may be the result of factors other than the changing the court map. The lack of sufficient data to capture all potential effects of an increase in court efficiency precludes the use of robust models to gauge the court efficiency. The fact that significant exogenous factors influence the formation, growth or speed of the courts is an important caveat.

Another limitation is that data regarding court efficiency, particularly the costs per FTE per judges and the expected changes after the implementation of WHGK, was considered confidential by the Council for the Judiciary. Therefore, it took a considerably longer time and more resources for making several visits to Council for the Judiciary to contact members and collect data.

4.5. Summary

This chapter has described the research method used in this thesis which includes the information on gathering technique, particularly a literature review. It, also, provides information on the limitations of the used data. In the next chapter I will focus on details of the results of previous research.

5. Results of previous research

Since the results of previous research help to gain a better understanding of what will be encountered during the analysis, this chapter focuses on the empirical results of previous studies. Section 5.1. concentrates on the results of APE report.²¹⁴ Sections 5.2. and 5.3. will pay attention to the SCP reports of 2007 and 2010²¹⁵. This chapter ends by answering the third sub-question of this thesis.

5.1. Empirical results of APE report

The APE report gives an overview of empirical results of previous research concerning the scale effects of the courts. The following summarizes the findings of this report.²¹⁶ To provide an overview of the results, first I will address the court productivity and then the court efficiency.

5.1.1. Productivity

In order to investigate the court productivity, the Council for the Judiciary and the SCP have initiated a project in which they present the statistical review on the developments and differences of the court output and productivity in the period 1995-2005. The findings of this research provide information for discussions relating to whether changing the court map can improve court efficiency. Their study is based on classic data analysis. In their analysis, they highlight that court production up to 2002 is measured by the amount of weighted cases based on ten different case types. From 2002, the production is measured by the amount of weighted cases based on forty-eight different case types. Consequently, they do not take into account the changes concerning the complexity within a case type.

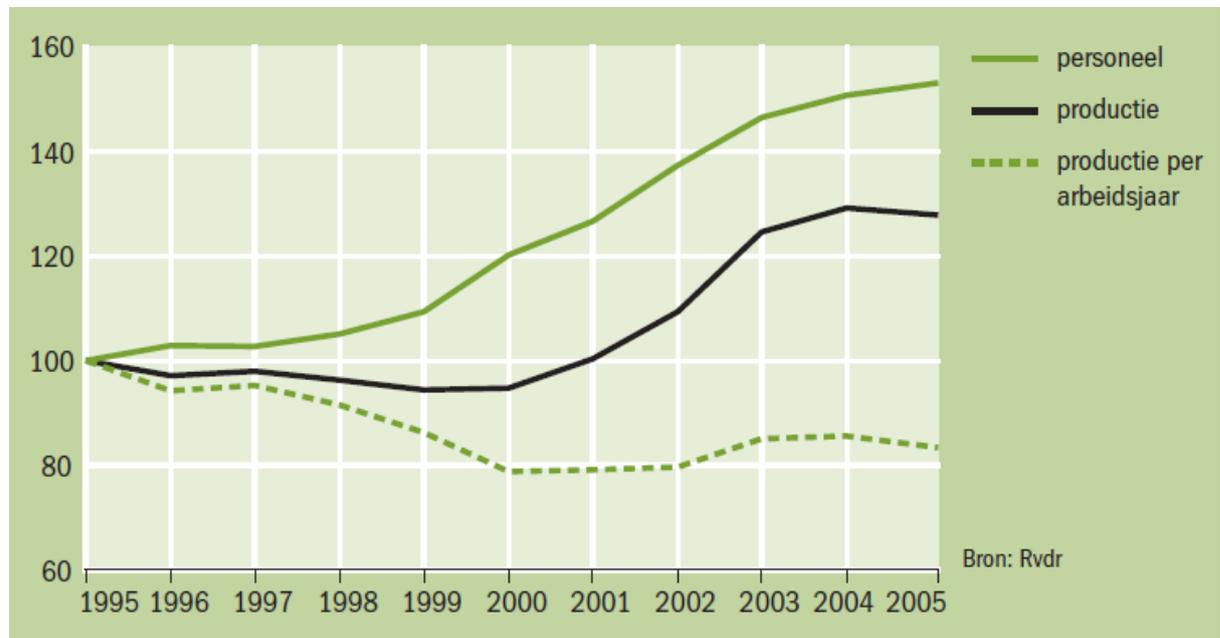
²¹⁴ See note 29 above.

²¹⁵ See note 28 above.

²¹⁶ See note 29 above.

Figure 6 illustrates the production per years of employment.²¹⁷

Figure 6: Production per years of employment



This figure shows that production has increased from 1990 to the mid-nineties. The increase is over 2% per year. After the mid-nineties, the production line stabilizes. Concerning the deployment of staff and the material means, this figure shows that they increase much faster than the measured production. After the mid-nineties – when the production per employee stabilizes – they rise unabated. This figure also illustrates that the cost per product has doubled in the period from 1990 to 2000. The growth is over 7% per year. This is thus compatible with an overall productivity decline of 7% per year. In comparison with the material productivity, the decline was nearly 9% per year. It is remarkable that given the fixed production and a growth in the use of resources the productivity declines substantially in the second half of the nineties. SCP notes that the productivity has declined in the second half of the eighties. However, this decline is not equal to the decline in the second half of the nineties.²¹⁸ According to the SCP report, it subsequently appeared that the

²¹⁷ *Ibid.*

²¹⁸ See note 50 above.

production decline could be blamed on different circumstances; like more organized crimes, increased professionalism in the legal profession and the increase of the number of appeals to the courts. Since these factors are not taken into the consideration, SCP regarded them as an explanation for the production decline.²¹⁹

5.1.2. Scale effect and efficiency

There are various studies about court scale effects.²²⁰ However, it is impossible to make a good analysis on the scale effects because most publications did not contain information on the extent of court input and output. For example they did not mention the minimum and the maximum court size. This was especially the case in the publications from other countries than the Netherlands. Therefore, it is difficult to translate the insights on the scale effects abroad to the Dutch situation. Thus, in spite of these observations, APE concludes that courts from other countries produce more output than in the Netherlands.²²¹ For the sake of completeness, detailed regarding the literature of APE on the effects is enclosed in Annex I.

Gillespie formulates and tests a positive theory of court production services. After the formulation, the formula was applied to the 90 Federal District Courts over the period of 1968-1974 to explain the differences in the average output of all judicial sources available to each court. By this

²¹⁹ *Ibid.*

²²⁰ R.W. Gillespie, 'The production of court services: an analysis of scale effects and other factors', *Journal of Legal Studies* 1976, nr. 2, pp. 243-264; D. Weller & M.K. Block, 'Estimating the cost of judicial services', in: C.M. Gray, *The cost of crime*, Beverly Hills: SAGE publications, 1979, pp. 149-164; J.R.A. Verwoerd & P.A.J.Th. van Teeffelen, *De rechter aan het werk: overbelast of onderbenut?*, Den Haag: WODC 54, 1985; F.P. Tulder & A.C. Spapens, *Doelmatig rechtspreken*, Sociaal en Cultureel Planbureau, Rijswijk, nr 80, 1990; S.A.C. Kittelsen & F.R. Førsund, 'Efficiency analysis of Norwegian district courts', *Journal of Productivity Analysis* 1993, nr. 3, pp. 277-306; F.P. van Tulder, *Van misdaad tot straf een economische benadering van de strafrechtelijke keten*, Sociaal en Cultureel Planbureau, Rijswijk, Sociale en Culturele Studies 21, 1994; F. Predraja & J. Salinas, 'An assessment of the Efficiency of Spanish Courts using DEA', *Applied Economics* 1997, nr. 11, pp. 1391-1403; R.A. Posner, 'Is the ninth circuit too large? A statistical study of judicial quality', *Journal of Legal Studies* 2000, 29, nr. 2, pp. 711-719; Groupement d'intérêt public Mission de recherche droit et justice (France), *La Qualité de la Justice: Une Analyse Économique Exploratoire*, Reims: Université de Reims Champagne-Ardenne (Centre d'Études et de Recherches en Analyse de Systèmes), 2001; N. Longo, 'Efficiency of Italian Administrative Tribunals Assessed by Means of EDA-FDH Analysis', *Rivista Internazionale di Scienze Economiche e Commerciali* 2001, 48, nr. 1, pp. 85-106.

²²¹ *Ibid.*

observation, Gillespie introduces some independent variables to explain the variability in productivity. As independent variables he mentions: court size, demand pressure, use of trials, civil or criminal case mix, indigent criminal defendants, places of conducting court hearings and magistrates.²²² APE notes that Gillespie's results may give insight on desired court size.²²³ According to Gillespie, the desired court size can be found between 8 to 10 judges per court.

Weller and Block estimate the cost of providing judicial services in the California superior court system from 1974 to 1976. The costs were only borne by the superior court. Expenses incurred by the police, the prosecutor and the public defender were excluded along with any costs not paid by the government. The chosen method of measuring costs provided an estimate of the true marginal cost for each type of disposition. Their results show that the difference in costs between a guilty plea and a complete trial was very large. This boosts the opinion that the degree to which plea bargaining is practiced by the prosecutor and permitted by the court can have a substantial effect on court costs. They also found out that cases dismissed or transferred from superior court are quite expensive. Although they could not explain this finding, this observation indicates that the cost of some pre-trial procedures is high. Their analysis also shows that there is evidence of slightly decreasing returns of scale in the provisions of judicial services. Changes in the size of the backlog per judge or in the variability of the caseload were not found to be statistically significant in explaining court costs.²²⁴

Pedraja and Salinas measure the technical efficiency of the Administrative Litigation Division of the Spanish High Courts. The concept of efficiency is measured by considering the specific characteristics of public

²²² R.W. Gillespie, 'The production of court services: an analysis of scale effects and other factors', *Journal of Legal Studies* 1976, nr. 2, pp. 243-264.

²²³ See note 29 above.

²²⁴ D. Weller & M.K. Block, Estimating the cost of judicial services, in: C.M. Gray, *The cost of crime*, Beverly Hills: SAGE publications, 1979, pp. 149-164.

production. The analysis is undertaken by using data envelopment analysis (hereafter: DEA) and various homogeneity tests (returns to scale and restrictions on weights) are applied to ensure a correct comparison between courts. In their analysis of Courts of Appeal, the optimal scale varies from 4 to 21 judges. The desired scale depends on the nature of the court activities. They notice that the desired scale can be found in the courts with relatively large amount of judgements. They also mention that the desired scale decreases when the court cases are settled.²²⁵

Kittelsen and Førsumd examined the efficiency of Norwegian courts. In order to compare generalized rural courts with specialized city courts, this study shows that the desired court size is larger than the current average court size. Thus, they conclude that it is more efficient to operate on a larger scale. By operating on a larger scale, the amount of the staff can be reduced with approximately 5%.²²⁶

Larsen et al find similar results for Denmark, however they note that there is not a clear relation between the desired scale and the amount of the judges per court.²²⁷ From this line of argument, APE indicates that the deployment of support staff may be an important indicator of desired scale.²²⁸

APE highlights that scale effects and specialization are not interchangeable and it is difficult to distinguish them from each other.²²⁹ The scale effect indicates what will happen to the output when the court increases its output. The synergistic effect refers to an increased intensity

²²⁵ [F. Predraja & J. Salinas, An assessment of the Efficiency of Spanish Courts using DEA, *Applied Economics* 28, 1997, nr. 11, pp. 1391-1403.](#)

²²⁶ S.A.C. Kittelsen & F.R. Førsumd, Efficiency analysis of Norwegian district courts, *Journal of Productivity Analysis* 1993, nr. 3, pp. 277-306.

²²⁷ P. Larsen, H.P. Baadsgaard, H. Engell, H. Mortensen, T. Pedersen and H. Thorup, 'Beretning om retternes produktivitet mv., Kopenhagen: Folgetinget 2000 and Finansministeriet 2001', *Budgetredegørelse 2000/2001*, Albertslund: Schultz Information, 2001, pp. 287-310.

²²⁸ See note 29 above.

²²⁹ *Ibid.*

caused by the combination of two factors. To help the picture come a little bit more in focus, here are two common illustrations of synergistic effect:

- Two medications taken together might have a more potent effect on the body than either would alone.
- In most cases, several employees working together on a project might result in an increased productivity and more efficient use of resources.

Nevertheless, about the synergistic effects is much less known than the scale effects, since it is difficult to analyse the synergistic effects. For analysing these effects, only certain types of parametric like the cost function are equipped.²³⁰ That is why the information about this subject is limited. Based on the collected literature, APE indicates that there is no attention to the (dis)advantage(s) of synergistic effects by diversified or specialized courts. This is due to the fact that there is not a proper technique to make a study of this topic. Only Kittelsen and Førsund attempt to get a grip on the efficiency by comparing the diversified courts with specialized ones.²³¹ With Goudriaan, I agree that their attempt is doomed to fail, because only courts with similar ways to calculate the output can be compared.²³²

Another important observation of APE is that the explanations of efficiency differences between the courts are at least unsatisfactory.²³³ In a French study, Barrère et al make an effort to explain the efficiency differences between the courts of first instance. They explain the differences by: (a) the amount of the population in an area, (b) the number of received civil cases, (c) the number of filed appeals and (d) the number of sub-divisions of the courts. Since there is no significant factor,

²³⁰ *Ibid.*

²³¹ See note 224 above.

²³² See note 29 above.

²³³ *Ibid.*

the attempt was barren.²³⁴ Tulkens provides only qualitative explanation for the large efficiency differences. He indicates the different possibilities to calculate the output and notice that the efficiency difference is caused by the absence of a central management.²³⁵ Larsen examines whether there is a relation between the efficiency differences on a not fixed scale and the amount of the judges per court. They did not find any relation between these two components.²³⁶

Concerning the court map, Van Tulder and Spapens note that the average court operates under the desired scale. They calculate that the scale elasticity is 1.05%. This means that 1% more input leads to 1,05% more output. Their study shows that the desired scale can be found in courts with about 80 FTE per judges.²³⁷ Four years later, however, Van Tulder finds a slightly smaller desired scale for the courts than he found in his previous study.²³⁸ He notes that the scale elasticity of the average of the district courts is not different than 1. Therefore, in the case of the Dutch courts, he concludes that the available information does not indicate that the scale effects are important for the productivity of the courts.

5.2. Empirical results of SCP report of 2007²³⁹

SCP analyses thoroughly the court index numbers. Its report provides information and statistical review on developments and differences in the court productivity of the nineteen district courts in the period 2002 to 2005. The findings contribute greatly to the discussion relating to desired court scale, costs and best practices in the judiciary. The following summarizes the findings of SCP report which are relevant for this thesis.

²³⁴ See note 29 above.

²³⁵ H. Tulkens, 'On FDH-efficiency analysis: some methodological issues and applications to retail banking, courts and urban transit', *Journal of Productivity Analysis* 1994, nrs. 1/2, pp. 183-210 and H. Tulkens, 'Évaluation de l'arrière judiciaire à la lumière d'une mesure de l'efficacité des activités des tribunaux', *Bulletin de Documentation (Ministère des Finances-Belgique)* 1998, 58, nr. 5, pp. 1-21.

²³⁶ See note 225 above.

²³⁷ F.P. Tulder & A.C. Spapens, '*Doelmatig rechtspreken*', Rijswijk: Sociaal en Cultureel Planbureau (SCP-cahier nr 80) 1990.

²³⁸ See note 92 above.

²³⁹ See note 50 above.

To provide an overview in the results, first I will address the court productivity and then the court efficiency.

5.2.1. Productivity

Total productivity relates output to input. Figure 7 illustrates the development of the total productivity for the nineteen courts. Between 2002 and 2003, the productivity had strong growth over past two years. Then it only slightly increased. This figure also illustrates that the productivity increased from 2002 to 2005 with 14%. This increase is the result of a production increase of 16% and an increase in the use of resource by 2%.

Figure 7: Total court productivity, 2002-2005 (in hours per Euro and in index number with 2002=100)

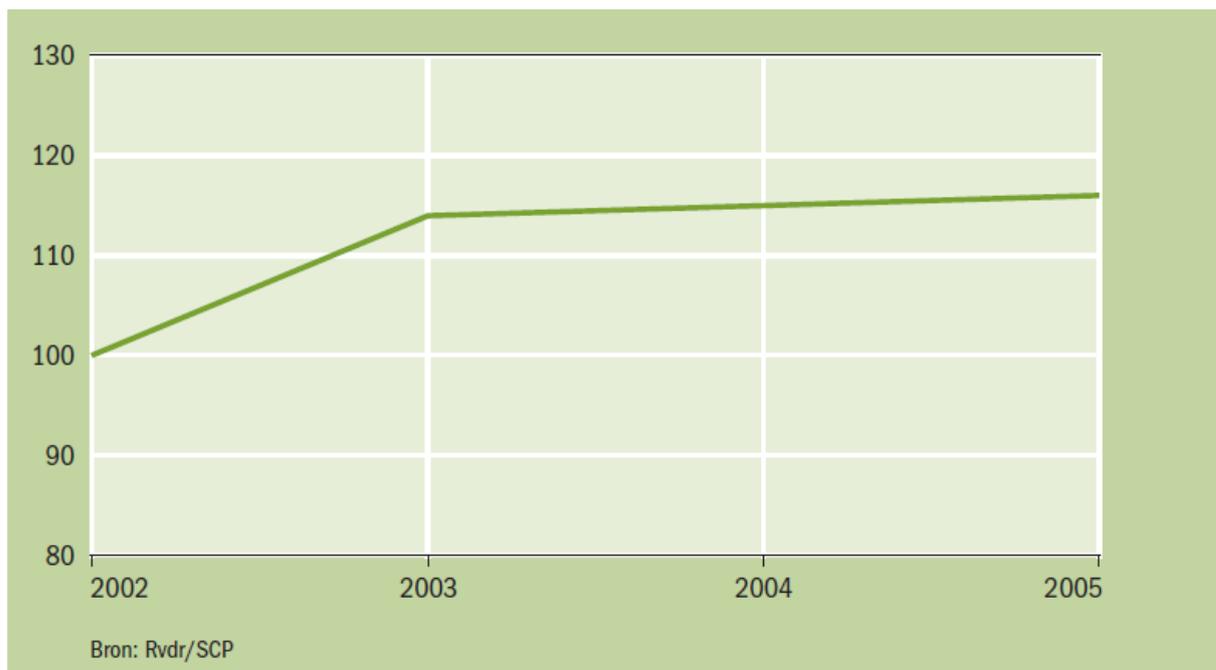
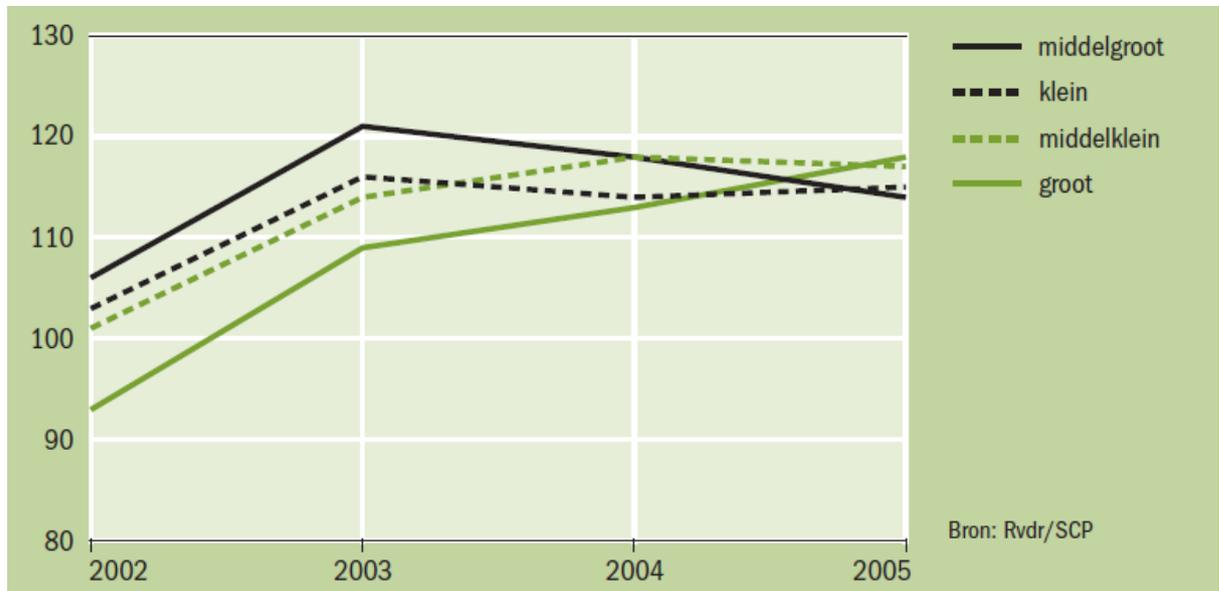


Figure 8 illustrates the court productivity by court size.

Figure 8: Total court productivity by court size, 2002-2005 (in hours per Euro and in index number with 2002=100)



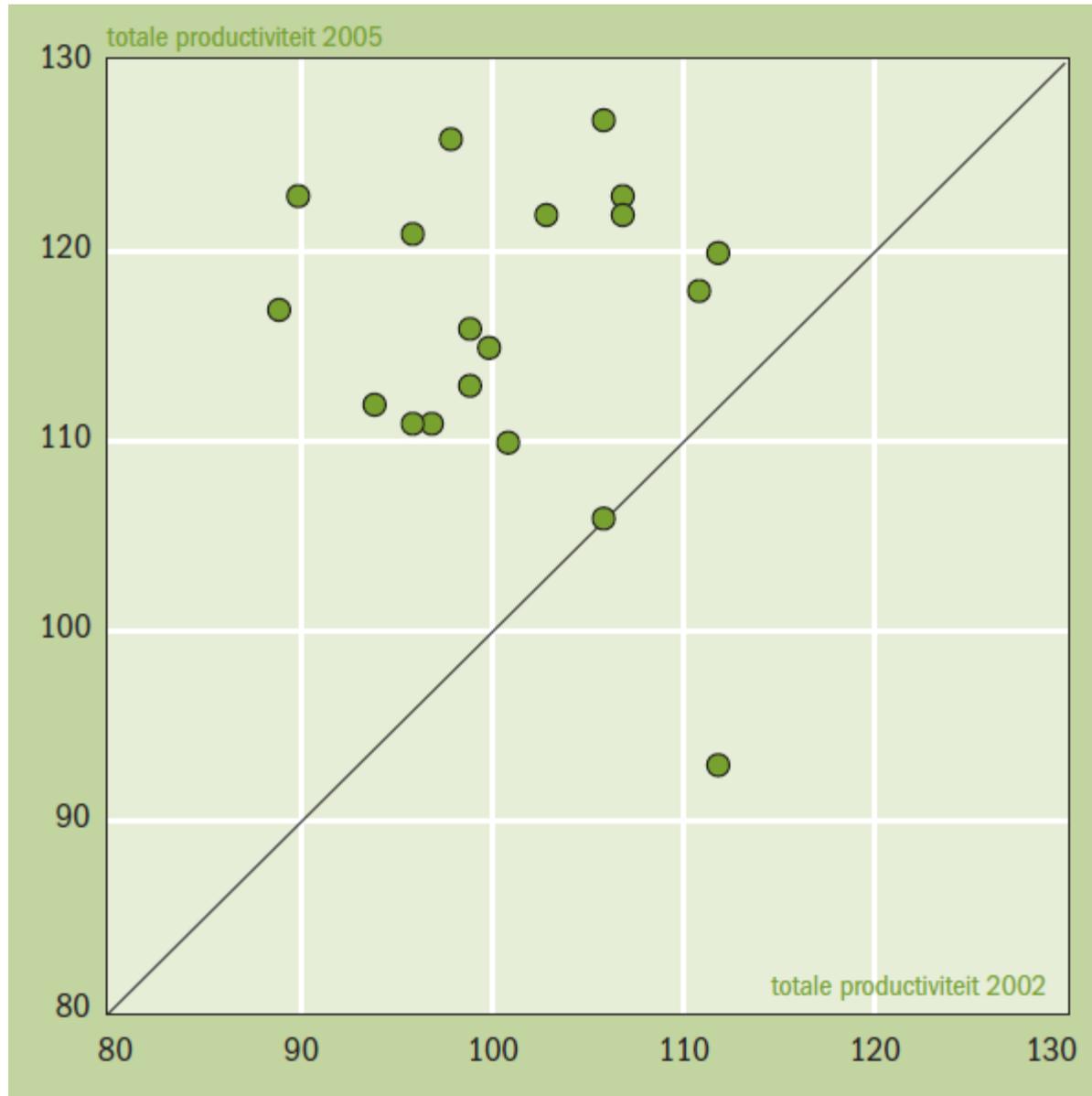
This figure shows the following:

- Till 2005, the total productivity is the lowest at big size courts.
- In 2005, the difference in the total productivity between the court sizes almost disappeared.

Figure 9 illustrates the differences in the total productivity of nineteen district courts.

Figure 9: Individual district courts: total court productivity, 2002 and 2005 (in hours per Euro and in index number with 2002=100)

Source: RvR/SCP



This figure illustrates that the total productivity varies between 93 and 127, in 2005. The maximum of the total productivity is 36% higher than its minimum. According to SCP, this difference was 27% in 2002. SCP also indicates that the difference between maximum and minimum in labour productivity is higher than the difference between maximum and

minimum in total productivity in 2005. According to the SCP, this difference is partly due to differences in labour quality or the use of other resources.²⁴⁰

I shall now recapitulate the main points concerning productivity:

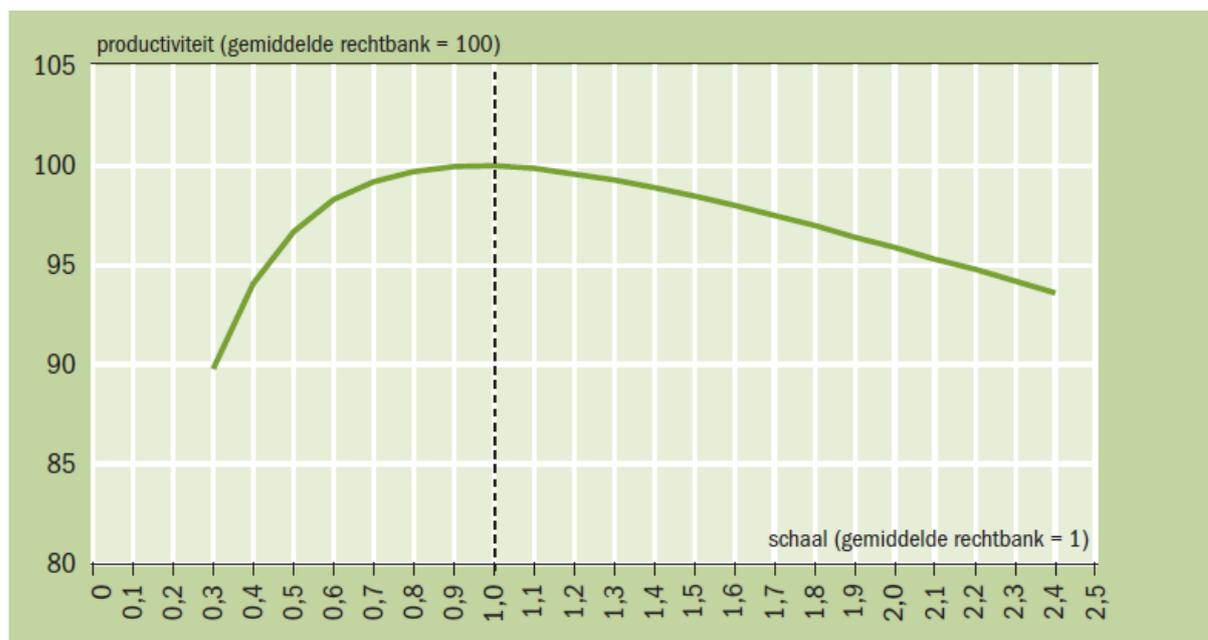
- The court productivity increased significantly from 2002 to 2005.
- There are significant differences in total and labour productivity of individual district courts.
- The output differences may be caused by the size of the courts, but there are (also) undoubtedly other causes.

5.2.2. Scale effect and efficiency

SCP investigates the court productivity by different court sizes and it uses a frontier court to draw a comparison. This frontier court is an expected average court and employs approximately 340 FTE staff. Figure 10 illustrates the consequences of court productivity by different court sizes.

Figure 10: Scale effects of district courts in index numbers and different scales

Source: RvR/SCP



²⁴⁰ *Ibid.*

As figure 10 shows the frontier court has a scale of 1. This results to a productivity of 100. A court that uses exactly twice as much resources as frontier - thus, scale 2 - has a productivity of 96. This means that a court with an input twice as much as the frontier court - thus, 680 FTE - produces per Euro 4% less.

After detailed analysis by using the court production function, the relevant conclusions are:

- The amount of inflow of cases and the number of backlogs influence the court production. This means that a high amount of inflow of cases results in a high productivity for an average court.
- There is neither positive nor negative indication that extra judges, support staff or other resources will result in a higher productivity.
- Between 2002 and 2005, the average court deviated 4% from the frontier court.²⁴¹

5.3. Empirical results of SCP report of 2011²⁴²

According to this report, the costs of public services are rising much faster than the output. The report notes that the cost price per product is increasing continuously and that this increase does not appear to signify higher quality. This report answers the question how the government has spent the tax money. This report answers this question by investigating six sectors, which are (a) primary education, (b) secondary education, (c) hospital care, (d) nursing and care, (e) police and (f) justice system. The analysis concentrates on the period 1995 to 2010. Concerning the justice, this report distinguishes a large number of products which are weighted to reflect the resources devoted to them. Since the results of this report do not make distinction between the different types of courts, I cannot use the results for my analysis. However, this report gives insight into the

²⁴¹ *Ibid.*

²⁴² B. Kuhry, F. de Kam, A. van der Torre, F. van Tulder, E. Eggink, E. Pommer, J. Blank, L. Herweijer, 'Waar voor ons belastinggeld? Prijs en Kwaliteit van publieke diensten', 11 Januari 2010.

measurement of the value of justice by the government. Following this, the report notes that the amount of inflow of the cases contributes to the increase in the judicial labour productivity. Another remarkable conclusion is that the judicial labour productivity decreased by more than 20% from 1995 to 2000.²⁴³

5.4. Conclusion

All things considered, the above reports show that:

- The costs of a court product have increased.
- There is an increase in the amount of court cases.
- There is no indication that there is a broad potential productivity gain by changing the court map.
- The court output differences may be caused by the size of the courts, but there are (also) undoubtedly other causes, like the increase for more interpreters and (different) changes in the legislations and regulations.
- More research concerning the causes of the court output differences is needed.

Concerning the question to what extent there is a relation between the court efficiency and the change of the court map; the reports show that there might be a relation between the court efficiency and the change of the court map. In general, however, there is no reason for changing the current court map. The issue of underperforming and limited opportunities for specialization can be solved by a structural collaborative relationship between the courts.

²⁴³ *Ibid.*

6. Data analysis of WHGK

In this chapter the results of the data analysis are presented. The data were collected and then processed in response to the problems posed in chapter 1 of this thesis. The findings presented in this chapter demonstrate the data analysis, particularly the expected productivity and scale effect on courts after the implementation of WHGK. In its conclusion, it will answer the question 2 of section 1.4.

6.1. WHGK

The main reason for the revision of the court map is to increase court efficiency in order to maintain a high degree of the quality of justice. The implementation of the WHGK will have consequences for the court organization and the allocation of resources. As mentioned in chapter 2, WHGK contains the following elements:

- Board of Directors;
- Operational management;
- Congruent region;
- Role of the Council for the Judiciary;
- Amount of court locations;
- Divisions of the court map.

The following paragraphs will, briefly, describe the elements of WHGK.

6.1.1. Board of Directors

According to the WHGK, the board of directors of the courts will consist of three members, two judicial members and a non-judicial director. By changing the court map, the board of directors will have access to more staff and more resources than in the current situation.

6.1.2. Operational management

The policy and the legislative framework provide opportunity to merge the operational management, particularly for the business functions which are not bound to any divisions of the court map. This kind of operational strategy focuses on inducing velocity and flexibility in the courts. The realization of the need and satisfaction of litigants are the very reason for the implementation of this kind of strategy. Therefore, the treatment of the parties is paramount. Achieving this capability requires all physical and logical events within the supply judiciary chain to be enacted swiftly, accurately, and effectively. The faster information and decisions flow through an organization, the faster it can be respond to the need of litigants. WHGK mentions other benefits, like: specialization, high volume flexibility, lower costs, higher judicial quality, fast(er) processing time, multi-skilled and empowered employees.

6.1.3. Congruent region

Another element is the establishment of the congruent region for the security and justice. According to the Minister, when the regions of police, public prosecutors and judiciary are tied up to each other, these organizations will be more efficient and effective.

6.1.4. Role of the Council for the Judiciary

Council for the Judiciary may not involve itself in the procedural aspects or substantive assessment of the decision in a specific case.²⁴⁴ At the same time, it performs as a central institution in the management and budgeting area. In its role as the central institution, it maintains relations with other authorities in the government. For example, it has the duty to advice the Parliament on the implementation of judicial policy of the government.²⁴⁵ In its task to promote the quality of justice, it is obliged to

²⁴⁴ Article 92, paragraph 1, of the Judiciary Organization Act.

²⁴⁵ Article 95 of the Judiciary Organization Act.

provide support for the court management.²⁴⁶ In this context, the Council for the Judiciary has the leading role, since it develops quality programs and takes control of the possible consequences. For this reason, the Chairman of the Council for the Judiciary holds the opinion that the Council for the Judiciary represents the judiciary in for example the media and society. He refers to the policy documents as the Agenda for the Judiciary and the Annual Reports which mentions the judicial view.²⁴⁷ WHGK may change the role of the Council for the Judiciary from providing effective support for the judges and the courts to becoming a manager. Given the authoritative relationship between the Minister of Justice and the Council for the Judiciary, one can argue that the Council for the Judiciary should not represent the judiciary. Whether this will happen, depends on the degree of centralization and the amount of authority delegated to the unit managers.

6.1.5. Amount of court locations

Regarding the indication of the court location, the Minister has chosen for the capitals of the provinces and the ten largest municipalities in the Netherlands. Other criteria for the indication of the court locations are the accessibility and continuity. According to the Minister, these criteria will not result in fewer locations for the courts; however it will result in decreasing the number of the management units. The Minister has emphasized that geographical accessibility is important to implement an effective policy. Nevertheless, WHGK mentions 32 court locations while in the current situation there are 59 court locations. Consequently, the court locations which do not meet the requirements will be closed.

²⁴⁶ [Article 94 of the Judiciary Organization Act](#).

²⁴⁷ E. van den Emster, E. Amelsfort and F. van Dijk, 'Herziening gerechtelijke kaart', *Trema* 2011, nr. 4, p. 127-133.

6.1.6. Divisions of the court map.

As mentioned above, specialization and expertise require a larger volume of cases, staff and resources. Because the current divisions of court map do not meet some of these requirements, changing the current court map can be the proper tool to improve the specialization and expertise in the courts. The changes concerning the divisions of the court map have been illustrated in figures 11 and 12.

Figure 11: Classification of the district courts in FTE before the revision

Size	Name	FTE
Small sized courts	Middelburg	145
	Assen	172
	Dordrecht	189
	Roermond	207
	Almelo	212
	Groningen	228
	Leeuwarden	230
	Zutphen	240
	Alkmaar	244
	Maastricht	300
Medium sized courts	Zwolle	371
	Breda	434
	Arnhem	444
	Utrecht	456
	Haarlem	468
	's-Hertogenbosch	477
Big sized courts	Rotterdam	686
	's-Gravenhage	885
	Amsterdam	886
	Total	7272
	Average	383

Figure 12: Classification of the district courts in FTE after the revision

Size	Name	FTE
Small sized courts		
Medium sized courts	Oost-Brabant	477
	Limburg	507
Big sized courts	Zeeland-West-Brabant	579
	Noord-Nederland	630
	Midden-Nederland	712
	Noord-Holland	712
	Amsterdam	815
	Rotterdam	875
	Den Haag	885
	Oost-Nederland	1081
	Total	7272
	Average	727

6.2. Expected productivity and scale effects after WHGK

Figure 12 presented the classification of the district court in FTE after the revision. In comparison with the frontier court, figure 13 illustrates the consequences of court productivity by different court sizes after the implementation of WHGK. To illustrate the impacts of WHGK, I have used the frontier court, measured by SCP.²⁴⁸ This frontier court is a fictive average court with a scale of 1 and employs approximately 340 FTE staff. Its productivity is 100.

²⁴⁸ See note 28 above, p. 76.

Figure 13: Expected productivity and scale effects of district courts after the revision

Size	Name	FTE after revision	Frontier court	Scale effect based on fig. 11	Productivity based on fig. 11
Small sized courts					
Medium sized courts	Oost-Brabant	477	340	1,40	99
	Limburg	507	340	1,49	98,5
Big sized courts	Zeeland-West-Brabant	579	340	1,70	97
	Noord-Nederland	630	340	1,85	96,5
	Midden-Nederland	712	340	2,09	95,1
	Noord-Holland	712	340	2,09	95,1
	Amsterdam	815	340	2,40	94
	Rotterdam	875	340	2,57	93
	Den Haag	885	340	2,60	92
	Oost-Nederland	1081	340	3,18	90
	Total Average	7272 727		2,14	95,1

Figure 13 illustrates that the courts will need more resources. It also shows that these new courts will have productivity under 100. This means that a court with an input of 1,40 - thus, 477 FTE - , produces per Euro 1% less. Concerning the size courts, this figure shows the following:

- The medium sized courts produce per Euro 1% to 1,5% less.
- The big sized courts produce per Euro 3% to 10% less.

6.3. Conclusion

This chapter illustrates the changes of the current court map. WHGK will bring changes in the following elements: (a) Board of Directors, (b) operational management, (c) congruent region, (d) the role of the Council for the Judiciary, (e) the amount of court locations, (f) divisions of the court map. After the implementation of WHGK, there will be medium and

big sized courts. The changes in the scale have effect on the court productivity. It seems that because of the scale changes the courts will produce per Euro 1% to 10% less.

7. Conclusions

In this chapter, the results of this thesis will be discussed. As an overview, this thesis produced a number of findings in relation to the main question. To understand the reasons why the legislator has chosen to change the court map, the background of WHGK and the main features of the policy concerning the court map were outlined. In order to study whether the implementation of WHGK can help to improve court efficiency, chapter 3 dealt with the theoretical framework, which indicated the selected analytical methods and the features of research framework. Chapter 4 gave a delineation of the way in which the research is conducted and included the information on gathering technique, particularly a literature review. It also provided information on the limitations of the used data. Since reading previous research helps to gain a better understanding of what will be encountered during the analysis, chapter 5 focused on the empirical results of previous studies. Following this, the impacts of WHGK on court efficiency was presented. This chapter summarizes the answers to the sub-questions.

The aim of this thesis was to examine whether the implementation of WHGK can help to improve court efficiency. Overall, the results of this thesis seem to suggest that the changes in court size have negative effect on the court productivity. It seems that because of the scale changes the courts will produce per Euro 1% to 10% less. Following from this, the implementation of WHGK may not help to improve court efficiency.

7.1. Sub-questions

As an overview, this thesis produced a number of sub-questions in relation to the aim of the thesis. These sub-questions focus on court efficiency after the implementation of WHGK. The answers to these sub-questions will now be discussed in this section.

Sub-question 1: Current court map

According to the Judiciary Organization Act, there are three types of courts: the courts of first instance, the Courts of Appeal and the Supreme Court. Based on the Judiciary Division Act, the Dutch judicial map consists of nineteen district courts. Two or more district courts reside under the jurisdiction of a Court of Appeal. There are five Courts of Appeal. There is one Supreme Court.

Sub-question 2: New court map

On July 13, 2012 WHGK was published. This Act changes the current court map. This change means that the number of the courts will be reduced. WHGK reduces the number of district courts to ten and the amount of Courts of Appeal to four.

Sub-question 3: Relation between court efficiency and scale effects

Concerning the question to what extent there is a relation between the court efficiency and the change of the court map; generally, the reports in this thesis suggest that there may be a relation between the court efficiency and the change of the court sizes.

Sub-question 4: Court efficiency and scale effects after the implementation of WHGK

WHGK contains the following elements: (a) reduction of the number of Board of Directors members, (b) establishment of the congruent region for the security and justice and (c) changing the court sizes in the court map. After the implementation of WHGK, there will be medium and big sized courts. Overall, results of this thesis seem to suggest that the changes in court size have effect on court productivity. It seems that because of the scale changes, the courts will produce per Euro 1% to 10%

less. Following from this, the implementation of WHGK may not help to improve the court efficiency.

7.2. Limitations and suggestions for further research

While this thesis has produced interesting findings, it does however, have limitations that need to be acknowledged. The first, and perhaps the most important limitation is, that this thesis is based on data analysis of previous reports than the actual data from Council for the Judiciary. Consequently, it is still unknown whether changing the court sizes may result in an alteration in court efficiency. Changes concerning the court efficiency may be the result of other factors than the change(s) in the court size. The lack of sufficient data to capture all potential effects of a change in court efficiency precludes the use of robust models to gauge the court efficiency. The fact that significant exogenous factors influence the formation, growth or speed of the courts is an important caveat.

In light of the limitations raised above, it is apparent that further research is needed. Future research is required to investigate the effects of WHGK on court efficiency. More research is needed that explores the court input in relation to its output, other than performances, for example the surveys concerning the satisfaction of the stakeholders.

References

Journal Articles

- H. Leibenstein (1966), 'Allocative Efficiency vs. "X-Efficiency"', *American Economic Review*, vol. 56, issue 3, pp. 392-415.
- D.J. Aigner and S.F. Chu (1968), 'On estimating the industry production function', *American Economic Review*, vol. 58, no. 4, pp. 826-839.
- G.H. Fisher (1968), 'Cost Functions and Budgets: Cost Considerations in Systems Analysis', Santa Monica : Rand Corporation.
- M.J. Farrell (1975), 'Journal of the Royal Statistical Society', *Journal of the Royal Statistical Society series*, vol. 120, no. 3, pp.253-290.
- R.W. Gillespie (1976), 'The production of court services: an analysis of scale effects and other factors', *Journal of Legal Studies*, nr. 2, pp. 243-264.
- D.J. Aigner, C.A.K. Lovell and P. Schmidt (1979), 'Formulation and estimation of stochastic frontier production function models', *Journal of Econometrics*, vol. 6, pp. 21-37.
- Nederlandse Vereniging voor Rechtspraak 's-Gravenhage (1979), 'De onafhankelijke rechter', *Trema Speciaal*, nr. 2.
- F.R. Forsund, C.A.K. Lovell and P. Schmidt (1980), 'A survey of frontier production functions and their relationship to efficiency measurement', *Journal of Econometrics*, vol. 13, pp. 5-25.
- H. Mintzberg (1980), 'Structure in 5's: A synthesis of the Research on Organization Design', *Management Science*, vol. 26, p. 322-341.
- European Court of Human Rights (1986), *Nederlandse Jurisprudentie*, nr. 2.
- A. Donabedian (1990), 'The seven pillars of quality', *Arch Pathol Lab Med* 1990, pp. 114-1118.
- G.E. Battese and T.J. Coelli (1992), 'Frontier production functions, technical efficiency and panel data with application to paddy farmers in India', *Journal of Productivity Analysis*, vol. 3, pp. 153-169.
- S.A.C. Kittelsen & F.R. Førsund (1993), Efficiency analysis of Norwegian district courts, *Journal of Productivity Analysis* 1993, nr. 3, pp. 277-306.
- M. Kingma (1993), 'Can Financial Incentive Influence Medical Practice?', *HRDJ* 1993, vol. 3, pp. 121-131.
- E.S. Overman and K.J. Boyd (1994), 'Best Practice Research and Postbureaucratic Reform', *Journal of Administration Research and Theory*, vol. 4, no. 1, pp. 67-84.
- H. Tulkens (1994), On FDH-efficiency analysis: some methodological issues and applications to retail banking, courts and urban transit, *Journal of Productivity Analysis*, nrs. 1/2, pp. 183-210.
- P. M. Langbroek (1995), 'Naar een rechtsplegingskunde', *Trema* 1995, p. 327.
- F. Predraja and J. Salinas (1997), An assessment of the Efficiency of Spanish Courts using DEA, *Applied Economics*, nr. 11, pp. 1391-1403.

- W.D. Duncombe, J. Miner and J. Ruggiero (1997), 'Empirical Evaluation of Bureaucratic Models of Inefficiency', *Public Choice* 1997, no. 93, pp. 1-18.
- M. Kosma, 'Measuring the Influence of Supreme Court Judges' (1998), *The Journal of Legal Studies*, p. 333-372.
- H. Tulkens, Évaluation de l'arriéré judiciaire à la lumière d'une mesure de l'efficacité des activités des tribunaux (1998), *Bulletin de Documentation (Ministère des Finances-Belgique)*, 58, nr. 5, pp. 1-21.
- J.C. Haltiwanger, I.J. Lane and J. Spletzer (1999), 'Productivity Differences Across Employers: The Roles of Employer Size, Age and Human Capital', *American Economic Review*, vol. 89, no. 2, pp.94-98.
- P.P.T. Bovend'Eert and C.A.J.M. Kortmann (2000), 'Het Courtpacking plan van het kabinet Kok', *Nederlands Juristenblad* 2000, vol. 36, p. 1770-1771.
- P. Larsen, H.P. Baadsgaard, H. Engell, H. Mortensen, T. Pedersen and H. Thorup (2000), *Beretning om retternes produktivitet mv.*, Kopenhagen: Folgetinget.
- R.A. Posner (2000), Is the ninth circuit too large? A statistical study of judicial quality, *Journal of Legal Studies*, vol. 29, nr. 2, pp. 711-719.
- M. Bhattacharya and R. Smyth (2001), 'The Determinants of Judicial Prestige and Influence: Some Empirical Evidence from the High Court of Australia', *Journal of Legal Studies*, vol. 30., issue 1, pp. 223-252.
- N. Longo (2001), Efficiency of Italian Administrative Tribunals Assessed by Means of EDA-FDH Analysis, *Rivista Internazionale di Scienze Economiche e Commerciali*, 48, nr. 1, pp. 85-106.
- F. van Dijk and F. Lauwaars (2003), 'Is modernisering ook verbeteren?', *Justitiele verkenning*, vol. 1, no. 3, pp. 121-132.
- H.F.M. Hofhuis (2003), 'Financiering van de rechtspraak en werklastmeting', *Trema*, pp. 90.
- R. Smyth and M. Bhattacharya (2003), 'How Fast Do Old Judges Slow Down? A Life Cycle Study of the Aging and Productivity in the Federal Court of Australia', *International Review of Law and Economics*, vol. 23, issue 2, pp. 141-164
- A.F.M. Brenninkmeijer (2004), 'Behoorlijke financiering van de rechtspraak', *Ars Aequi* 2004, vol. 53, pp. 167-168.
- S. Bretschneider, F.J. Marc-Aurele and J. Wu (2004), 'Best Practices Research: A methodological Guide for the Perplexed', *Journal of Public Administration Research and Theory*, vol. 15, no. 2, p. 307-323.
- A.C. Worthington (2004), 'Frontier Efficiency Measurement in Healthcare: A Review of Empirical Techniques and Selected Applications', *Medical Care Research and Review*, vol. 61, issue 2, pp. 1-36.
- A.H.M. de Jong & D.L. Kabel (2005), 'De rol van evaluaties in het begrotingsproces', *Justitiële Verkenning*, vol. 31, pp. 100-110.
- Ch. Breidert, M. Hahsler and T. Reutterer (2006), 'A review of Methods for Measuring Willingness-To-Pay', *Innovative Marketing*, vol. 2, issue 4, pp. 8-32.

- S.M. Myers, H.P. Smith and L.L. Martin (2006), 'Conducting best practices research in public affairs', *International Journal of Public Policy*, vol.1, no.4, pp.367-378.
- S. Gracia, D. Molina and M. Lozano (2009), 'A study on the use of non-parametric tests for analyzing the evolutionary algorithms' behaviour: a case study on the CEC'2005 Special Session on Real Parameter Optimization', *Journal of Heuristics*, vol. 15, issue 6, pp.617-644.
- H. Morita and N.K. Avkiran (2009), 'Selecting inputs and outputs in data envelopment analysis by designing statistical experiments', *Journal of the Operations Research Society of Japan*, vol. 52, no. 2, pp. 163-173.
- N.G.N. Prasad and S.R. Lele (2010), 'Improved prediction in finite population sampling using convex combination of parametric and non-parametric models', *The Indian Journal of Statistics*, vol. 72, issue 2, pp. 189-201.
- F. Reyes-Santias, C. Cadarso-Suarez and M.X. Roderiguez-Alvarez (2011), 'Estimating hospital services production function through flexible regression models', *Journal Mathematical and Computer Modelling: An International Journal*, vol. 54, issue 7-8, pp.1760-1764.
- A. Robson and L. Samuelson (2011), 'The evolution of decision and experienced utilities', *Theoretical Economics*, vol. 6, pp.311-339.
- E. van den Emster, E. Amelsfort and F. van Dijk (2011), 'Herziening gerechtelijke kaart', *Trema*, nr. 4, pp. 127-133.
- C. Flango, A. McDowell, D. Saunders, N. Sydow, C. Cambell and N. Kauder (2012), 'Future Trends in State Courts 2012: American Bar Association in Task Force on Preservation of the Justice System, Report to the House of Delegates', *National Center for State Courts*, Williamsburg, VA.

Working papers

- F. Alcalá and F. Ciccone (2001), 'Trade and Productivity', *International Macroeconomics*, Center for Economic Policy Research, Discussion paper series no. 395.
- C. Mothe, U.T. Nguyen-Thi and P. Nguyen-Van (2011), 'Synergistic effects of organizational innovation practices and firm performances', working paper no. 2011-32, CEPS INSTEAD, May 2011, pp. 1-30

Books

- United Nations (1980), *Handbook of statistical organization: a study on the organization of national statistical services and related management issues*, United Nations, New York.
- G.R. Adams & J.D. Schvanenveldt (1985), *Understanding research methods*, University of Michigan, Longman.
- D.C. Hoaglin, F. Mosteller and J.W. Turkey (1985), *Understanding Robust and Explanatory Data Analysis*, Wiley, New York.
- A. Koutsoyiannis (1987), *Modern Microeconomics*. Basingstoke: McMillan.

- F.J. Dietz, W.J.M. Heijman and E.P. Kroese (1990), *Leerboek algemene economie*. Stenfert Kroese, Leiden.
- F.P. van Tulder & A.C. Spapens (1990), *Doelmatig rechtspreken*, Sociaal en Cultureel Planbureau, Rijswijk/Den Haag.
- S. Codling (1992), *Best Practice Benchmarking: A Management Guide*, Gower Publishing Ltd.
- C. Handy (1993), *Understanding Organizations*, 4th Edition, Oxford University Press USA.
- C. Sellitz, M. Jahoda, M. Deutsch and S. Cook (1966), *Research Methods in Social Relations*, Holt, Rinehart and Winston, New York.
- R. David & J.E.C. Brierley (1968), *Major Legal Systems in the World Today – An Introduction to the Comparative Study of Law*, Free Press, United States.
- Werkgroep herziening rechterlijke organisatie (1973), *Gedachten over de toekomst van de rechtspleging: Rapport*, Staatsuitgeverij Den Haag.
- D. Weller & M.K. Block (1979), *Estimating the cost of judicial services*, in: C.M. Gray, *The cost of crime*, Beverly Hills, SAGE publications.
- Y. Hasenfeld (1983), *Human Service Organizations*, Prentice Hall Inc. Englewood Cliffs.
- H. Mintzberg (1983), *Structure in Fives: Designing Effective Organisations*, New Jersey.
- F. Kaufmann, G. Majone, V. Ostrom & W. Wirth (1986), *Guidance, control and evaluation in the public sector: the Bielefeld interdisciplinary project*, De Gruyter Berlin.
- P. Selznick (1992), *The moral commonwealth: social theory and the promise of community*, University of California Press Berkley, California.
- M.C. Reingruber & W.W. Gregory (1994), *The Data Modeling Handbook: A Best-Practice Approach to Building Quality Data Models*, John Wiley and Sons.
- Joint Government/Industry Parametric Cost Estimating Initiative Steering Committee (1995), *Parametric Cost Estimating Handbook*, Joint Government/Industry Parametric Cost Estimating Initiative Steering Committee.
- A.W. Koers, P.M. Langbroek, J.A.M. Vennix and J.M.M. Austen (1997), *Waar Staat de ZM?*, Ministrie van Justitie, Brouwer Uithof, Utrecht.
- A.W. Koers, P.M. Langbroek, J.A.M. Vennix & J.M.M. Austen (1997), *De ZM op Weg*, Ministrie van Justitie, Brouwer Uithof, Utrecht.
- J. Aitchison (1998), *The Articulate Mammal: an introduction to psycholinguistics*, Taylor & Francis.
- J.W. Creswell (1998), *Qualitative Inquiry and Research Design: Choosing Among Five Traditions*, Sage Publications, Thousand Oaks, California, London, New Delhi.
- P.M. Langbroek, K. Lahuis & B.J.M. ten Berge (1998), *Kwaliteit van rechtspraak in weegschaal*, Deventer.
- J.M. Leemhuis-Stout (1998), *Rechtspraak bij de tijd*, Adviescommissie toerusting en organisatie zittende magistratuur (Commissie Leemhuis), 's-Gravenhage.
- W.J. Conover (1999), *Practical Nonparametric Statistics (Wiley Series in Probability and Statistics)*, Archives Books, Inc.

- R. Meijerink (1999), *Recht van spreken: interdepartementaal beleidsonderzoek naar de bedrijfsvoering rechtspraak*, IBO-commissie Bedrijfsvoering Rechtspraak, 's-Gravenhage.
- D. Kahneman and A. Tversky (2000), '*Choices, Values, and Frames*', Cambridge University Press, first edition.
- Groupement d'intérêt public Mission de recherche droit et justice (France) (2001), *La Qualité de la Justice: Une Analyse Économique Exploratoire*, Reims: Université de Reims Champagne-Ardenne, Centre d'Études et de Recherches en Analyse de Systèmes, France.
- P.M. Langbroek (2001), *Changing the Judiciary and Judicial Administration: the Netherlands and Guatemala*, at World Bank Conference: Empowerment, security and opportunity through law and justice, St. Petersburg.
- P. Orshoven, L.F.M. Verhey & K. Wagner (2001), *De onafhankelijkheid van de rechter: preadvies Vereniging voor de Vergelijkende Studie van het Recht van België en Nederland*, W.E.J. Tjeenk Willink.
- E.C. Brommet & M. Smilde (2002), *Van rechterlijke macht naar de rechterlijke organisatie: kroniek van achttien jaar verandering 1983-2001*, Ministerie van Justitie, Den Haag.
- M. Fabri, P.M. Langbroek & H. Pauliat (2003), *The Administration of Justice in Europe: Towards The Development of Quality Standards: research project coordinated by the Mission de recherche Droit et Justice with the contribution of the European Commission*, Research Institute on Judicial Systems, National Research Council, Italy: Editrice Lo Scarabo.
- A. Yatchew (2003), *Semiparametric Regression for the Applied Econometrician*, University of Toronto.
- D.F. Kettl (2005), '*The Global Public Management Revolution*', second edition, Brookings Institution Press, 2005.
- J.B.J.M. ten Berge and A. Hol (2006), *De Onafhankelijkheid van de individuele rechter*, Den Haag.
- M. Boone, P. Kramer, P.M. Langbroek, S. Olthof & J. van Ravesteyn (2006), *Het functioneren van de rechterlijke organisatie in beeld: Breedteststudie evaluatie Wet organisatie en bestuur gerechten en Wet Raad voor de rechtspraak*, Wetenschappelijk Onderzoeks- en Documentatie Centrum, Den Haag.
- A. Darnay & M.D. Magee (2006), '*Encyclopedia of Small Business*', Gale, 3rd Edition.
- M.M. Helms (2006), '*Encyclopedia of management*', Thomson Gale, University of Michigan, 2006.
- W.W. Hsieh (2009), *Machine Learning Methods in the Environmental Science*, University of British Columbia, Vancouver.
- P.M. Langbroek et al (2010), *Quality Management in Courts and in the Judicial Organizations in 8 Council of Europe Member States: a qualitative inventory to hypothesise factors for success or failure*, CEPEJ Studies No. 13.

Dissertations, theses and research reports

- R.A. Verwoerd & P.A.J.Th. van Teeffelen (1985), *De rechter aan het werk: overbelast of onderbenut?*, Den Haag: WODC (WOCB-rapport 54).
- R. Goudriaan, F. van Tulder, J. Blank, A. van der Torre & B. Kuhry (1989), *Doelmatig dienstverleners: een onderzoek naar de productiestructuur van vier voorzieningen in de kwartaire sector*, Rijswijk/Alphen aan den Rijn: Sociaal en Cultureel Planbureau/Samsom (Sociale en Culturele Studie 11).
- J. F.P. Tulder & A.C. Spapens (1990), *Doelmatig rechtspreken*, Rijswijk: Sociaal en Cultureel Planbureau (SCP-cahier nr 80).
- W. Polder & G. Paulides (1993), *Prestatieverschillen tussen arrondissementsparketten*, Den Haag: WODC. R.A.
- F.P. van Tulder (1994), *Van misdaad tot straf een economische benadering van de strafrechtelijke keten*, Rijswijk: Sociaal en Cultureel Planbureau (Sociale en Culturele Studies – 21).
- A. Jason & M. Hall (1998), *Creating a viable farm forestry industry in Australia - what will it take?*, Barton, ACT : Rural Industries Research and Development Corporation.
- E. Eggink & J.L.T. Blank (2001), *Verstandig verzorgd*, Den Haag: Sociaal en Cultureel Planbureau (Sociale en Culturele Studie 4).
- Prisma (2002), *Open voor publiek: Klantwaarderingsonderzoek in zes rechtbanken*, Prisma.
- F. van Tulder (2006). *Rechtspraak en schaaffecten*, Den Haag: Raad voor de rechtspraak.
- Thomas JW (2006), Pacific Business Group on Health, *Hospital Cost Efficiency Measurement: Methodological Approaches*.
- G.Y. Ng (2007), *Quality of Judicial Organisation and Checks and Balances*, Universiteit Utrecht: G.J. Wiarda Institute for Legal Research, Utrecht.
- National Quality Forum (2007), *Measurement Framework: Evaluating Efficiency Across Episodes of Care*, December 2007.
- Southern California Evidence-based Practice Center—RAND Corporation (2008), "Identifying, Categorizing, and Evaluating Health Care Efficiency Measures," AHRQ Publication No. 08-0030.
- B. Kuhry, F. de Kam, A. van der Torre, F. van Tulder, E. Eggink, E. Pommer, J. Blank, L. Herweijer (2010), *Waar voor ons belastinggeld? Prijs en Kwaliteit van publieke diensten*.
- P. Neleman and P.J. Neijt (2010), *Toetsingscommissie civiele vonnissen*, Den Haag: Raad voor de rechtspraak.

Company Reports and Manuals

- Ministry of Justice (1984), *Rapport naar aanleiding van startfaseonderzoek naar de organisatie van de gerechten en parketten*, Utrecht.
- Ministry of Justice (1984), *Eindrapport van de Staatscommissie herziening rechterlijke organisatie*, Staatsuitgeverij.

- Amsterdam 2000 (1993), Een visie op de rechtspleging, meer in het bijzonder in het arrondissement Amsterdam, in de voorshands overzienbare toekomst.
- Nederlandse Vereniging voor Rechtspraak (1996), Bestuur en beheer van de rechtspraak: rapport van het Initiërende Beraad, Den Haag.
- Werkgroep Hoekstra (1996), Beheersstructuur van de rechterlijke organisatie: interdepartementaal beleidsonderzoek financieringssysteem en beheersstructuur van de rechterlijke organisatie, Den Haag 1996.
- APE (2003), Rechtspraak en productiviteit. Een internationale verkenning. Den Haag: APE 2003.
- F. van Dijk (2003), Economisch belang van de rechtspraak, Raad voor de rechtspraak.
- Nederlandse Vereniging voor Rechtspraak (2004), Leidraad Onpartijdigheid voor de rechter.
- Project borging permanente educatie (2006), Advies: Raad voor de rechtspraak, Den Haag.
- Eindrapport Commissie Van der Winkel: goede rechtspraak door sterke regio's, 14 September 2006.
- Sociaal Cultureel Planbureau (2007), Rechtspraak: productiviteit in perspectief, Den Haag.
- National Quality Forum (2007), Measurement Framework: Evaluating Efficiency Across Episodes of Care.
- European Commission for the Efficiency of Justice (2008), European Judicial Systems.
- Council for the Judiciary (2011), Kengetallen gerechten 2011.
- Raad voor de rechtspraak (2012), Factsheet productiviteitsontwikkeling rechtspraak.
- Raad voor de Rechtspraak (undated), productie per jaar: 2000 – 2010, undated.

Agenda

- Agenda voor de rechtspraak 2002 – 2005: continuïteit en vernieuwing, March 2002.
- Agenda voor de rechtspraak 2005 – 2008, July 2004.
- Agenda van de rechtspraak 2008 - 2011: onafhankelijkheid en betrokken, July 2007.

Year plans

- De Rechtspraak: jaarplan 2005, undated.
- De Rechtspraak: jaarplan 2006, undated.
- De Rechtspraak: jaarplan 2007, undated.
- De Rechtspraak: jaarplan 2008, undated.
- De Rechtspraak: jaarplan 2009, undated.
- De Rechtspraak: jaarplan 2010, undated.

Annual Reports

- Council for the Judiciary (2002), Jaarverslag 2002.
- Council for the Judiciary (2003), Jaarverslag 2003.
- Council for the Judiciary (2004), Jaarverslag 2006.
- Council for the Judiciary (2005), Jaarverslag 2006.

- Council for the Judiciary (2006), Jaarverslag 2006.
- Council for the Judiciary (2007), Jaarverslag 2007.
- Council for the Judiciary (2008), Jaarverslag 2008.
- Council for the Judiciary (2009), Jaarverslag 2009.
- Council for the Judiciary (2010), Jaarverslag 2010.
- Council for the Judiciary (2011), Jaarverslag 2011.

Kengetallen

- Council for the Judiciary (2006), Kengetallen gerechten 2006.
- Council for the Judiciary (2007), Kengetallen gerechten 2007.
- Council for the Judiciary (2008), Kengetallen gerechten 2008.
- Council for the Judiciary (2009), Kengetallen gerechten 2009.
- Council for the Judiciary (2010), Kengetallen gerechten 2010.
- Council for the Judiciary (2011), Kengetallen gerechten 2011.

Information from the WWW

- Editorial, Data Standards and Data Models - Published in DM Review, January 2004, Knowledge Integrity, Inc, 2005.
<http://www.knowledge-integrity.com/columns/dmr200401.htm>, August 30, 2012.
- Press release rijksoverheid.nl, New judicial map to improve the efficiency of the judicial system, 17 December 2010.
- G.E. Battese & T.J. Coelli, 'A Stochastic frontier production function incorporating a model for technical inefficiency effects' op de website van une.edu.au.
- www.econmodel.com/classic/terms/prodfcn.htm, undated.
- <http://www.egwald.ca/economics/dualityproductioncost.php>.
- <http://www.economicshelp.org/blog/2412/economics/productive-vs-allocative-efficiency/>

Legal sources

- Amending modernization of judicial system.
- Code of Civil Procedure of the Netherlands.
- General Administrative Law Act of the Netherlands.
- Government Accounts Act.
- Judiciary Organization Act.
- Judiciary Division Act.
- Act to change the court map.
- Besluit van 13 juli 2002, houdende regels inzake de financiering van de rechtspraak (Besluit financiering rechtspraak).
- Besluit van 28 januari 2005, houdende nieuwe regels inzake de financiering van de rechtspraak in verband met het invoeren van een baten-lastenstelsel en het verrekenen van productiever schillen (Besluit financiering rechtspraak 2005).

- Wet van 12 juli 2012 tot wijziging van de Wet op de rechterlijke indeling, de Wet op de rechterlijke organisatie en diverse andere wetten in verband met de vermindering van het aantal arrondissementen en ressorten (Wet herziening gerechtelijke kaart); vergadering van de vaste Commissie voor VenJ; korte aantekeningen, 23 september 2011.

Annex I: Literature analysis concerning the scale effect

Author	Scale
R.W. Gillespie ²⁴⁹	Between 1970 till 1972, the scale effects increased from 9 to 10. After this increase, the scale effects decrease. According to the APE report, Gillespie has used the wrong formula to establish the optimum scale.
F.P. van Tulder ²⁵⁰	Analysis on cost function of 19 district courts resulted in a slight increase of scale effects.
S.A.C. Kittelsen ²⁵¹	Most of the district courts are downscaled. At the same time, most of the out is realized by the up scaled courts.
W. Polder ²⁵²	There is a significant difference in the time spent on disposing the cases between the district courts. This report researches whether these differences are caused by the laborious hours on the case. Its impact did not seem significant. The report has, also, investigated the impact of the staffing on the amount of time spent on disposing the cases. This factor seemed to have a major impact on the time spent on disposing a case.
F.P. van Tulder ²⁵³	This research illustrates the extent of the

²⁴⁹ R.W. Gillespie, 'The production of court services: an analysis of scale effects and other factors', *Journal of Legal Studies* 1976, nr. 2, pp. 243-264.

²⁵⁰ F.P. van Tulder & A.C. Spapens, '*Doelmatig rechtspreken*', Sociaal en Cultureel Planbureau, 1990, Rijswijk/Den Haag.

²⁵¹ S.A.C. Kittelsen & F.R. Førsund, 'Efficiency analysis of Norwegian district courts', *Journal of Productivity Analysis* 1993, nr. 3, p. 277-306.

²⁵² W. Polder & G. Paulides, '*Prestatieverschillen tussen arrondissementsparketten*', 1993, Den Haag: WODC. R.A.

	<p>crime. It analyses the output structure in the criminal law area. Successively, it describes the following subjects: the police, the judiciary and the prison system. The research includes topics as: the production / the output, the production cost and the amount of the necessary staff.</p>
<p>F. Pedraja-Chaparro²⁵⁴</p>	<p>The objective is to provide a measure of technical efficiency of the Administrative Litigation Division of the Spanish High Courts. The concept of efficiency to be measured and the most adequate technique for carrying out the efficiency analysis are selected by considering the specific characteristics of public production. The analysis is undertaken by using data envelopment analysis (DEA) and various homogeneity tests (returns to scale and restrictions on weights) are applied in order to ensure a correct comparison between Courts. Some additional extensions to the analysis (such as the calculus of efficient delays and an approximation to the calculus of global efficiency) are carried out.</p>

²⁵³ F.P. van Tulder, '*Van misdaad tot straf*', Rijswijk/Den Haag: Sociaal en Cultureel Planbureau, 1994.

²⁵⁴ F. Pedraja & J. Salinas, 'An assessment of the Efficiency of Spanish Courts using DEA', *Applied Economics* 28, 1997, nr. 11, pp. 1391-1403.