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<u>*Paper Project*</u>

WHAT DETERMINES PRODUCTION AND UTILIZATION OF RESEARCH FOR DEVELOPMENT?: THE CASE OF THE MOROCCAN MINISTRY OF FINANCE[(*)]

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<u>**Abstract :**</u>

The paper deals with the issue of research production and utilization in the policy process, centering on the case of the Moroccan Ministry of Finance. After a critical review of the recent literature on this front, we have processed data from questionnaires designed for researchers and policymakers, using statistical and econometric tools. Our empirical analysis using a cross-researcher model indicates that more quantitative and qualitative researches are combined more the supplied research has more chance to be internalized and applied in the policymaking process. This is confirmed by the statistical investigation of research impact and influence using data from a quantifiable questionnaire for policymakers. This suggests that education and research institutions in Morocco should work in favor of enhancing capacity-building to foster logical thinking and help students, and future and current researchers to understand how data may be collected and how they should be processed in order to grasp public policies at the three main stages of problem definition, implementation and evaluation/monitoring. An efficient statistical apparatus should be set up in order to facilitate the canalization of data to researchers.

However, it is important to stress that the combination of qualitative and quantitative analyses is not sufficient to boost research utilization and strengthen research impact on policy. As highlighted through our empirical analysis using data from quantifiable questionnaires for researchers and policymakers, research communication and digestibility efforts are required. As soon as policymakers consider 'external' research as less communicable, too much theoretical and vague, research will not be incorporated into the policymaking process.

Perception of policymakers about research quality matters for research utilization and impact. When research is considered by policymakers as less pertinent/relevant, less credible and inadequate to meet their needs and expectations, its chance to be internalized and applied will be lower. To enhance research-policy links, researchers and policymakers should lessen to each other. Indeed, the degree of synergy between 'external' and 'in-house' researchers seems to be an important determinant of research utilization and impact in the Moroccan case. While such synergy may narrow the 'cultural gap' between the two communities of researchers and policymakers, it would also help 'external' researchers to better understand the policy arena and policymakers to be aware of the fact that conceptual and methodological approaches used in 'external' research institutions also matter for the understanding of public policies at the various stages of the policy process. Many researchers in Morocco declare that they are not interested in policy research because,

according to them, there is not a "social demand" for research. As for policymakers, they declare that they are less interested in 'external' research because, according to them, there are fewer efforts from 'external' researchers to provide an efficient supply of a relevant policy research. Efforts should be made in the direction of a consensus between researchers and policymakers, permitting to improve research supply taking into consideration policy requirements as well as rigor of scientific analysis. We propose here to set up joint policy research units combining 'in-house' and 'external' researches. The ultimate objective is to better define design, implement and evaluate public policies for development and poverty alleviation.

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1. Introductory Remarks

Policy-based research seems to be widely under-utilized in the developing World even though its role in the development process has received more attention in the recent literature. The contribution of knowledge-based economy to the development and well-being has been recognized among the communities of researchers and policy-makers (see for example, Irvine and Martin, 1997; David and Foray, 2001). Identifying and exploring problems, designing and conducting policies to solve them as well as evaluating and monitoring undertaken policies unambiguously require utilization of knowledge and research.

In developing countries, however, there is not only a problem of demand and uptake of research by policymakers. Another issue concerns the supply of research as well as the quality of supplied research. Bridging research and policy in the developing World should be analyzed in terms of supply of and demand for relevant evidence-based research. As a Moroccan sociologist argued, multiple political, institutional, socioeconomic and cultural obstacles may hinder production and consumption of research by policymakers (see Guessous, 2002; Aghanim, 1993).

Beside philosophical and sociological thoughts, alternative approaches and methodologies may help to better understand the context within which research is produced and consumed. In particular, they may help to grasp why research in Morocco is less used in the policy-making process and how well actions and reforms may help to bridge research and policy. This issue is still subjected to perceived ideas among the community of researchers and that of policymakers as well. The present research paper is dealing with this issue attempting to explore factors which may hinder the production of policy-relevant research as well as those impeding its uptake by policymakers, especially in the Moroccan Ministry of Finance. The ultimate objective is to formulate policy implications and suggestions to improve bridging research to policy in Morocco. The targeted groups in the framework of our whole research project are researchers (suppliers), and policymakers (demanders). In this framework, a quantifiable questionnaire has been designed for 80 researchers. It aims at collecting data on research supply and utilization as well as on its determinants[1]. As for policymakers at te Moroccan Ministry of Finance, another quantifiable questionnaire has been prepared. It aspires to collecting data on: i) impact and influence of research in the arena of public policies; ii) the impact of the political, institutional, economic and social context; iii) evidence (research and communication); iv) links between research and policy; v) external influences. In all cases, we have taken into account the main phases of the policy cycle, namely problem definition, implementation and evaluation/monitoring of public policies. The two questionnaires have been designed and disseminated among researchers and policymakers at the end of 2004.

The remainder of our paper is organized as follows. Section II presents our theoretical and conceptual framework. Section III presents our methodology of quantifiable questionnaires for

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[1]- See the questionnaire in the BRP Data Base.

researchers and policymakers. Section IV outlines our modeling of research utilization and research impact, summarizes our main research hypotheses and presents and interprets our empirical results concerning measurement and determinants of research utilization and impact in Morocco. Finally, Section V outlines some of our concluding remarks and policy implications.

2. **The theoretical and Conceptual Framework**

I what follows, we review available theories and models and try to question their validity in the particular case of Morocco. In relationship with our study on bridging research and policy, we conduct here a critical survey of the models of knowledge utilization as well as the model of public policy cycle.

2.1. The theoretical Dimension of the Models of Knowledge Utilization

As Neilson (2001: 2) argued, "*for many social science researchers, influencing policy makers and/or decision makers is an intended result or expectation of their research. Development researchers are no exception, least of all because they want to know if their research has had an impact on people's every day lives in terms of poverty, food insecurity, malnutrition or environment sustainability*" (on this issue, see also Garrett and Islam, 1998).

Debates on knowledge and research utilization have resulted in controversial models, mainly the rational model; the muddling through model, the enlightenment school and the policy paradigms model.

The rational model "*follows a logical and ordered sequence of policy-making phases*" (see Stone et al., 2001: 5). It also "*concaves, assesses and compares all options, calculating all the social, political and economic costs and benefits of a public policy*" (Stone et al., 2001: 5). In this model, to provide policy-makers with 'certainty', the researcher has to research and present all policy options. Our hypothesis here is that Moroccan researchers in the current context of the country would not probably have the required training, capacity and time to produce relevant policy research and to disseminate it to policy-makers. While this idea relates to research supply issues, we think that there are other issues linked with the thorniest problem of research demand in Morocco. In particular, decision-makers may block the access of researchers to data and may be not interested in identifying the best policy option through research. Indeed, at least in the particular case of Morocco, the most simplistic hypothesis of the rational model is that it assumes that the most accurate and scientifically relevant research will persuade decision-makers to define policy problems, to design the relevant public policies to address them, to better implement policy programs and to evaluate them efficiently. As Stone et al. (2001: 5) argued, "*the aims of policy-makers are often limited to satisfying immediate public demands, not to maximize long-term social gains*". As interviews with collaborators of policy-makers (see Mansouri, 2003) have revealed, policy-makers are concerned with 'day-to-day issues', not with long-run issues, which are the realm of relevant and more accurate policy research. In spite of its methodological value, the rational model is seen here as difficult to use for bridging research and policy in Morocco. This issue is closely linked with the broad research domain of the political and institutional context (see our research questions above).

A serious critical model against the rational model is the 'Muddling Through' proposition. Herbert Simon's model, based on the notions of 'bounded rationality' and '*satisficing'* recognizes that there are practical constraints on rational decision-making (unconscious skills, habits and reflexes, people's values and cultural conceptions, limitations to knowledge and information, etc.). Lindblom (1980) viewed policy-making as "*one of disjointed incrementalism or muddling through*" (quoted in Neilson, 2001: 12, and Sutton, 1999: 10). "*The incrementalist model focuses on the decision making*

aspect of the policy making process and presents it as one which takes small incremental steps towards policy change. In this sense, policy change is seen more as a reform process where decision makers modest or regular decisions rather than sudden, dramatic or fundamental decisions" (Neilson, 2001: 12). We think that it is important to see how, why and when bridging research and policy in Morocco has been influenced by such incrementalism of policy-makers. In particular, it is important to know if the weaknesses of the bridging research and policy in Morocco is due more to the fact that researchers do not understand incrementalism and pragmatism in the policy-making process rather than to the unwillingness of consuming research by those policy-makers (for details on the policy-making process, see for example, Keeley and Scoones, 1999; Sutton, 1999).

Weiss (1977; 1980) build up the "knowledge utilization school" based on what he called "the enlightenment function of research and knowledge". This school views knowledge as cumulative. As Stone et al. (2001:6) explained, following the knowledge utilization school, "*Knowledge, over time, becomes incorporated into practice, in a process termed 'enlightenment'. While research is rarely convincing or comprehensive enough to exercise a determining impact on policy-making, accumulated research findings gradually alter decision-makers perceptions of both the causes of problems and the likely effects of policy interventions*". While this proposition may contain a grain of truth, we think that it is not sure that policy-makers in Morocco have the willingness and the capacity to learn from research in the long-run. Believing that advancement in knowledge will be incrementally reflected in the Moroccan policy process is an equivalent to 'do nothing to bridge research and policy in the short as well as medium run'. The enlightenment model, as in the rational model, views knowledge as apolitical and it is not sure that the authoritative knowledge and research will prevail. It is important to take into account the political and institutional context that may negatively affect the supply of and demand for research. Issues concerning incentives to researchers, characteristics of research organizations, relevance, credibility, communication as well as external influence should also be addressed to better improve scientific production and its uptake by policy-makers.

The fourth research utilization model is the "policy paradigms model". According to Hall (1990: 59), a policy paradigm is "*an overarching framework of ideas that structures policy making in a particular field*". Through paradigms, "*researchers, and crucially, policy-makers, view politics, economics and society, as well as their own role in these spheres*" (Stone et al, 2001: 7). According to this model, the paradigm serves to define problems that are urgent to address as well as appropriate policies to address them. Whether knowledge is acceptable depends in this approach on socioeconomic and political factors. Ruling elites and influential interest groups determine and select the kind of knowledge and research to be used in policy-making through their influence over such paradigms. In Hall's model of first, second, and third order changes, policy-making (under policy paradigms) is characterized by long periods of incremental change, punctuated by brief periods of major change. In Morocco as in many countries, one can observe the shift from Keynesian to Neo-liberal paradigms, especially since early 1980s. However, the Moroccan government has not necessarily used relevant research to set up a true market society. For example, while public investment in physical and social infrastructure is seen to build up a market oriented economy, this kind of public spending (in proportion to GDP) has been dramatically cut and paradoxically, current public consumption has been maintained (see Mansouri, 2003a, for details on a case study on research and fiscal policy reforms in Morocco). Therefore, such a shift should not be considered as a third order change (or as a 'social learning' by policy-makers). In general, it is important to analytically and empirically study the relative influences of a set of paradigms on policy-making in Morocco and to see how those paradigms are understood by policy-makers as well as how this understanding may impact uptake of relevant policy research by decision-makers.

2.2. The Importance of the Public Policy Cycle Model

Traditionally, the policy process may be divided into four neat stages: i) problem definition and agenda-setting; ii) formal decision-making; iii) policy implementation; iv) evaluation and

monitoring. While this model is often seen as excessively linear, it is very useful in outlining the different functions research might play in the policy process (Neilson, 2001; Stone et al., 2001; Sutton, 1999).

Although research on specific problems and issues can enlighten decision-makers, researchers rarely exert a decisive impact on problem definition and agenda-setting. In a developing country like Morocco, other factors such as sharp crises and external constraints can be more important. For example, at least until the end of eighties, the Moroccan government did not pay attention to research on disparities in wealth distribution. When social inequalities were widening after the undertaking of the Structural Adjustment Program and pressures from international financial institutions, the government started to design and implement poverty alleviation programs and even to fund research in this area. The issue concerns when, where and how well researchers can be better integrated in problem definition and policy agenda setting in Morocco. Such integration may crucially depend on the political and institutional context, incentives to researchers, relevance and communication, the characteristics of research organizations as well as the external influence and funding.

Regarding the implementation stage, it is important to stress that policy-makers have a 'control deficit' resulting from the fact that they do not implement the policies themselves. Due to specific issues, the implementation of policy and research recommendations may not necessarily result in expected results or may not achieve stated objectives. Those specific issues may be bureaucratic incompetence and/or resistance (on the bureaucracy as a powerful interest group, see Mansouri, 2003a), inadequate resources, infrastructure or expertise and "inevitable modification of policy in the implementation phase" (Stone et al., 2001: 9). In spite of its crucial importance, researchers in Morocco rarely give adequate attention to the implementation process. One of the objectives of our research project consists of addressing issues of when, where and how well researchers can be involved in research on implementation of public policies and even in engaging with street-level bureaucrats.

Monitoring is another stage of the policy process over which researchers can exert a significant impact. In Morocco for instance, the ratification and monitoring of agreements with foreign countries (like the partnership agreement and free trade agreement with the European Union and the signed free trade agreement with the USA) requires relevant research and analysis. Research in public policy evaluation may help decision-makers to better know where, when and how certain factors shape the design and implementation of public policies and how to address existing issues through re-formulation and/or re-implementation of such policies. The question however is whether decision-makers in Morocco have the willingness and the capacity to boost the involving of researchers in the evaluative research into policy. This is closely linked with the key questions posed among the four research domains outlined in this research papers (see key questions above).

In spite of its usefulness in understanding the policy process phases, the extensively linear policy cycle model suffers from certain shortcomings. In line with existing theoretical literature, we think that at least two competing theoretical models may be particularly relevant to explain the weaknesses of the bridging research-policy mechanisms in Morocco. First, one can mention the New Institutionalism or the New Institutional economics, which emphasizes the role of institutions in bridging research and policy (see Dorwood et al, 2000; Stone: 2002). In Morocco, like in many other developing countries, institutions are so weak that information costs as well as sunk costs may be higher and therefore the impact of research may be limited (path dependency). Difficulties in acquiring new information "*lead to the call for 'institutional fixes' in developing countries, with the aim of reducing these costs or risks, and to provide incentives for organizations or individuals to utilize and disseminate researc*h" (Stone et al., 2001: 11). Thus, to better bridge research and policy in Morocco, the ongoing education and research reform program should crucially rely on institutional reforms. Second, it is important to stress the importance of post-modern approaches, which emphasize how language and discourse shape these policy agenda, and how problems and solutions are apprehended.

How external events are perceived by policy-makers matter in changing policies more than these events themselves. Since development discourses represent a way of thinking, 'policy narratives' that simplify complex development problems into specific and digestible stories are essential for disseminating and communicating research (on issues of research communication as well as relevance, credibility and legitimacy, see Stone, 2002; Stone et el., 2001; Neilson, 2001). Post-modern approaches which focus on the existence of a 'cultural gap' between the two communities of researchers and policy-makers may be particularly relevant for the case of Morocco where interactions between researchers and policy-makers may be described as a "dialogue of hollows". This is the reason why this issue is particularly outlined in our key research questions (see above).

3. Research Utilization and Research Impact: A Methodology of Quantifiable Questionnaires

While theoretical foundations are essential to understand bridging research and policy issues, we see them as not sufficient to conduct relevant studies and analyses in this research area. Empirical research is crucial to better understand impediments and obstacles to the supply of and demand for policy research in the case of developing countries in general and in Morocco in particular. To better address the issue, we must listen to producers, intermediaries, and consumers of policy research. In the present research paper, our investigations are limited to researchers and policymakers at the Moroccan Ministry of Finance.

3.1. Items of the Quantifiable Questionnaire for Researchers

Methodologically speaking, to achieve research objectives of our paper, we have designed quantifiable questionnaires for researchers and policymakers. Since the sample of the selected respondents (especially the sample of selected policymakers) is not large enough, our empirical results may be considered here as important findings destined to further explore the issue of bridging research to policy in Morocco in the framework of forthcoming researches and further future analytical and empirical works.

The sample of eighty researchers has been drawn from the population of researchers in 'Faculties of Law and Economics' in Marrakesh, Rabat and Casablanca. The selected researchers have been asked to respond to a quantifiable questionnaire in order to measure research supply and utilization in Morocco as well as to explore its determinants during the past recent years. Beside data collected through such a questionnaire, discussions with researchers have been conducted in order to enrich subjective data through objective debates. In order to better understand the issue of bridging research to policy in Morocco from another point of view, an additional quantifiable questionnaire has been designed for policymakers. Our approach consists of selecting a stratified sample of policymakers, i.e. a sample of policymakers working for the various directorates of the Ministry of Finance. Since additional responses from policymakers have been received late, only data from ten collaborators of policymakers in the Moroccan Ministry of Finance have been analyzed in the present second research report. In addition to subjective data collected from the respondent policymakers, discussions with them have allowed us to listen to actors in the important ministerial department of Finance in order to better apprehend how policymakers view the problem of bridging research and policy at various stages of the policy process. The final objective is obviously to identify practical ways to bridging research and policy for development.

The questionnaire for researchers has been designed in line with theoretical foundations, taking into account the political, economic, social and cultural reality of Morocco. The questionnaire seeks to get data on research utilization and its determinants in the Moroccan case. More precisely, our objective is to measure research utilization as well as to explore its determinants in Morocco. Therefore, the first starting point consists of measuring research utilization. In this framework, we follow a modified methodology of Knott and Wildavsky (1980) which was applied by Lester (1993), and Landry et al (1998). In our quantifiable questionnaire for policymakers, research utilization

measurement is associated with each stage of the policy process, namely problem definition, implementation and evaluation/monitoring of public policies. Our mean hypothesis here is that the nature and extent of research utilization may differ from a stage of the policy cycle to another. As highlighted in our quantifiable questionnaire for researchers, research utilization is seen to be constructed as an index of six cumulative stages ranging on a five-point scale from 1(never) to 2 (rarely), 3 (sometimes), 4 (usually/often), and 5 (always):

- Transmission of research production (*do you transmit your research results to policymakers?*).

- Adaptation of research results (do *you think that policy-makers read and understand your research works?*).

- Reference of research production in public reports (*have your research works been cited as references in public reports?*).

- Efforts by policymakers to adopt research results (do *you think that policy-makers have made efforts to adopt your research works?*).

- Influence of policymaking through research production (*do you think that your research has influenced choices and decisions of the Moroccan policy-makers?*).

- Application of research results (*has your research been applied and extended by policy-makers?*).

In line with our main theoretical hypotheses, the following variables have been selected in order to explore their impact on research utilization in the Moroccan case:

- The Political, Social and Cultural Context: this variable is aggregated and constructed so as to get information on the perception of researchers about democracy in Morocco and its impact on supply of and demand for research during the three main phases of the policy cycle, namely problem definition, implementation and evaluation/monitoring of public policies. The whole index is composed of five indicators concerning:

  - Democracy (*what is your perception about democracy in Morocco and its impact on supply of and demand for research?*). This indicator ranges on a five-point scale from 1 (democracy in Morocco is one of façade and its impact is negative) to 5 (the Moroccan democratic system is well-developed and its impact on research production and uptake is decisive).

  - The Quality of Governance (*do you think that the quality of governance in Morocco hinders your efforts to produce and disseminate relevant policy-based research?*). This indicator ranges on a five-point scale from 1 (governance in Morocco is very bad and this is very detrimental for research production, dissemination and use) to 5 (governance in Morocco is irreversibly more and more improving, resulting in very decisive production, dissemination and use of relevant policy-based research).

  - Cultural Factors (*do you think that cultural factors play a role in hindering research production, dissemination and uptake in the Moroccan context?*). This indicator ranges on a five-point scale from 1 (cultural mentalities in Morocco are very refractory and hostile-to-change, resulting in irrelevant and much less policy-oriented research) to 5 (cultural factors in Morocco have nothing to do with supply, dissemination and demand for relevant policy-based research).

- ▪ Interest Group Pressures (*do you think that interest group pressures affect research production, dissemination and uptake in Morocco?*). This indicator ranges on a five-point scale from 1 (interest group pressures in Morocco are very crucial in determining research supply, dissemination and uptake) to 5 (interest group pressures in Morocco have nothing to do with supply, dissemination and demand for relevant policy-based research).

- ▪ State Capacity and Short-Term Interests of Moroccan Policymakers (*do you think that the degree of the state capacity in Morocco and short-term interests of Moroccan policy-makers affect production and use of relevant policy-based research?*). This indicator ranges on a five-point scale from 1 (state capacity and short-term interests of policy-makers significantly affect production and use of research in Morocco) to 5 (state capacity and short-term interests of policy-makers do not affect production and use of research).

- The Qualitative and/or Quantitative Nature of Research (*what is the nature of your research works?*): this indicator ranges from 1 (entirely qualitative) to 2 (marginally quantitative), 3 (combination of qualitative and quantitative analyses), 4 (often quantitative), 5 (always quantitative).

- The Degree of Digestibility of Research Products: this aggregated index is composed of five indicators ranging on a five-point scale from 1 (no) to 5 (always):

  - ▪ Readability and Understandability of Research Results;

  - ▪ operationality, Communicability and Applicability of Research Results for Policymaking;

  - ▪ focus on variables which can be easily manipulated by policymakers;

  - ▪ sensitivity to research users;

  - ▪ use of simple illustrations such as easily understandable graphs, colors, humor and simple stories.

- The Extent of Communication of Research to Planners and Policymakers: The constructed index associated with this variable is composed of three indicators ranging on a five-point scale from 1 (never) to 5 (always):

  - ▪ organization of pre-meetings with research users to plan the research guidelines and the scope of research projects;

  - ▪ discussion of preliminary research results with planners and decision-makers in formal or informal meetings;

  - ▪ dissemination of final research results with presence of policymakers.

- The Synergy between 'External' and 'In-House' Researches: this variable ranges on a five-point scale from 1 (never) to 5 (always). Collected data have relied on the following question: "*as an 'external' researcher, have you been associated with 'in-house' researchers to produce relevant policy-based research?*"

- Links between Researchers and Policymakers: the constructed index associated with this possible explanatory factor of research utilization is composed of five indicators measured on a five-point scale ranging from 1 (no/never) to 5 (always). The five indicators are as follows:

- Consideration of relevance/pertinence of research outputs by policymakers (*how the relevance/pertinence of your research is considered by research users?*);
- Coincidence of research works with policy-makers' needs and expectations (*do your research works coincide with policy-makers' needs and expectations*?);
- assessment of the degree of credibility of research by policy-makers (*how the degree of credibility of your research is assessed by policy-makers?*);
- the point of view of policy-makers about the capacity of the researcher to orient research works to meet the needs of research users (*how do policy-makers view your capacity to orient research works to meet the needs of research users?*);
- the time required for research to be internalized and applied by policy-makers (*how is the time required for your research to be internalized and applied by policy-makers?*).

- <u>Policy-Makers' Perception about Research Quality</u>: the constructed index is composed of five indicators ranging on a five-point scale ranging from 1 (never) to 5 (always). For each of the three main stages of the policy cycle, such indicators are as follows:

  - Relevance/pertinence of research (*how the relevance/pertinence of your research is considered by research users?*);
  - coincidence of research works with policymakers' needs and expectations (*do your research works coincide with policy-makers' needs and expectations?*);

  - research credibility (*how the degree of credibility of your research is assessed by policy-makers?*);

  - capacity of research to meet research users' needs (*how do policy-makers view your capacity to orient research works to meet the needs of research users?*);

  - time required for research to be internalized and applied (*how is the time required for your research to be internalized and applied by policy-makers?*).

- <u>Domestic Funding of Research</u>: the constructed index in this case is composed of five indicators ranging on a five-point scale from 1 (never/no) to 5 (always/decisively/very frequently). The five indicators are as follows:
  - Benefiting from national research funding (*do you benefit from national research funding?*);
  - the point of view of the researcher about the policy-orientation of the domestically financed research (*do you think that the domestically financed research is policy-oriented?*);
  - evaluation of the domestically funded research (h*ow the output of the domestically funded research is evaluated?*);
  - the extent of publication and dissemination of domestically financed research (*is the output of the domestically financed research published and disseminated?*);
  - the extent of the impact of the domestically funded research on the policy-making process (*do you think that the domestically funded research impacts more on the policy-making process?*).

- Impact of Research Funding from Foreign Organization: The index associated with this factor is also composed of five indicators ranging on a five-point scale from 1 (no/ever) to 5 (always/very frequently):
    - Benefiting from foreign research funding (*do o benefit from foreign research funding?*);
    - the policy-orientation of the financing of research from abroad (*do you think that the financing of research from abroad is policy-oriented?*);
    - evaluation of the internationally funded research (*how the output of the internationally funded research is evaluated?*);
    - publication and dissemination of the output of the internationally financed research (*is the output of the internationally financed research published and disseminated?*);
    - impact of the internationally funded research on the Moroccan policymaking process (*do you think that the internationally funded research impacts more on the Moroccan policy-making process?*).

- Publication of Articles, Books and Articles in Books: the constructed index associated with this variable is composed of five indicators ranging on a five-point scale from 1 (never) to 5 (very frequently). The five measured indicators are as follows:
    - Publication of articles in non-referred journals and reviews (*do you publish articles in non-refereed journals and reviews?*);
    - publication of articles in referred journals and reviews (*do you publish articles in non-refereed journals and reviews?*);
    - publication of manuals on public policies (*do you publish manuals on public policies?*);
    - publication of policy research-oriented books and chapters in books (*do you publish policy research-oriented books and chapters in books?*);
    - simplifying research publications through executive summaries (*do you complete your research publications by simplified executive summaries?*).

- Learning from Policy-Oriented Research Conducted Abroad: the index constructed in this case is composed of five indicators ranging on a five-point scale from 1 (never/no) to 5 (very frequently/decisively):
    - Interest of the researcher in recent multilingual foreign research works on policy analysis (*do you read recent multilingual foreign research works on policy analysis?*);
    - Involvement in research networks on policy analysis (*have you been member, fellow or research associate in international research networks on policy analysis?*);
    - Presentation of papers on policy analysis in international workshops (*do you present papers on policy analysis in international workshops?*);
    - *Research grants from international networks* (*do you get research grants from international networks to conduct relevant policy-based research?*);
    - Transmission of research outputs funded by international networks (*do you think that papers presented abroad and research outputs funded by international networks have been transmitted to Moroccan policy-makers?*).

3.2. Items of the Quantifiable Questionnaire for Policymakers

The objective of our quantifiable questionnaire for policymakers at the Moroccan Ministry of Finance is to collect data on impact and influence of research, the influence of the political, institutional, economic and social context in Morocco, evidence (research and communication), the

links between research and public policies (the bridges) as well as the external influences on the uptake and consumption of research by Moroccan policymakers.

Concerning impact and influence of research on the policymaking process, the quantifiable questionnaire for policymakers aspires to constructing the following indicators:

- <u>The nature and extent of research used in the policymaking process</u>: the nature of research refers here to the basic, policy and action researches. In all these three kinds of research, policymakers have been expected to respond to the question related to the magnitude of research used during the three stages of the policy cycle, namely problem definition, implementation and evaluation/monitoring. The extent of research utilization is captured here through a four-extent-based scale ranging from "Never" to "Marginally", "Significantly" and "Frequently". Each of the four-extent-based scales takes values ranging from 1 to 5. Therefore, the whole scale ranges from 1 (no research utilization at all) to 20 (higher utilization of research in policymaking).

- <u>The Quantitative and/or Qualitative Nature of the Research Used</u>: the constructed index in this case aspires to measuring the respective preference of policymakers for quantitative and qualitative research. The four extent-based scale range from "Entirely Qualitative" to "Marginally Quantitative", "Combination of Qualitative and Quantitative Researches" and "Frequently Quantitative". As in the case of the nature and extent of research used, the whole scale in this case ranges from 1 (marginal utilization of quantitative research) to 20 (higher utilization of quantitative research) and the three main stages of the policy cycle are taken into account.

- <u>The Weight of 'External' and 'In-House' Researches in Research Utilization</u>: the constructed index to measure such weight aims at understanding in what extent policymakers in Morocco use quantitative and/or qualitative research. For each of the three main stages of the policy cycle, the scale ranges from "Entirely In-House" to "Marginally External", "Combined External and In-House Research" and "Frequently External". The whole scale ranges from 1 (marginally external) to 20 (entirely external).

- <u>The Extent of the Impact of 'External' and 'In-House' Research on Policymaking</u>: based on the same partial and whole scales and taking into consideration the three main phases of the policy cycle, the constructed index in this case aims at comparing the magnitude of the respective impact of 'external' and 'in-house' research in Morocco. For each kind of research, the extent-based scale ranges from 'none' to 'marginally', 'significantly' and 'very significantly'. The applied scaling concerns separately 'external' and 'in-house' research.

- <u>The Speed of the Research Impact on the Policymaking</u>: the constructed index in this case aspires to measuring the speed of the impact of research on the policymaking process. The whole scale ranges from 1 (very slow) to 20 (very rapid) while the speed-based scale ranges from "Very Slow" to "Slow", "Rapid" and "Very rapid".

- <u>The Extent of Research Impact on Specific Policies</u>: because of their importance in the Moroccan case, the following specific policies have been taken into consideration: i) Fiscal policy; ii) Social Policy (Poverty alleviation); iii) Agricultural development; iv) Regional integration and partnership with Europe. The constructed index for each policy aims at obtaining information about the magnitude of the impact of research in these policy areas during the three main stages of the policy process, namely problem definition, implementation and evaluation/monitoring. For each policy, the same scaling has been applied with the extent-based scale ranging from "none" to "marginal", "significant" and "very significant".

- <u>Policy Agendas, Arguments, Horizons, Objectives and Strategies in their Relationship with Problems, Priorities and Approaches Implied by Research Outputs in Morocco</u> (*do you think*

that policy agendas, arguments, horizons, objectives and strategies reflect problems, priorities and approaches implied by research outputs in Morocco?): using the same whole scale ranging from 1 (weakly) to 20 (very significantly), the relationship-based scale ranges from "weakly" to "marginally", "significantly" and "very significantly".

- Laws, Regulations, Institutions and Capacities in their Relationship with Problems, Priorities and Approaches Implied by Research (*do you think that laws, regulations, institutions and policy capacities reflect problems, priorities and approaches implied by research in Morocco?*). The constructed index here relies on the same partial and whole scales as in the precedent case.

- The major factors which have contributed to the shift from interventionist to neo-liberal policies in Morocco: the objective of the constructed index in this case is to get information about the contribution of research utilization, among other factors, to the transformation of policy paradigms, mainly the shift from state intervention to economic and political liberalization. In addition to 'external' research, 'in-house' research and foreign research, the following possible explanatory factors of the transformation of paradigms have been taken into account: i) Economic and social crisis; ii) Foreign pressures from international financial institutions; iii) International contagion; iv) Regional integration; v) 'Intuitive' observations of policymakers. For each explanatory factor, the whole scale ranges from 1 (no impact) to 20 (very significant impact).

- The Contribution of Research to the Understanding of Poverty Determinants and Initiation of Poverty Alleviation Programs in Morocco: for each stage of problem definition, implementation and evaluation/monitoring of public policies, an index of such contribution has been constructed taking values from 1 (very weak) to 20 (very significant).

- The Contribution of Research to Convince Moroccan Decisionmakers to Sign Free Trade Agreements with the European Union and the USA: for each free trade agreement, we use the same scaling as in the previous case.

- The Major Factors that have Contributed to the Inefficiency of Fiscal Policy Reform in Morocco: the objective of the constructed index in this case is to understand whether research utilization, among other possible explanatory factors, has played a role in the quality of fiscal policy reform in Morocco[2]. In addition to unavailability of reliable policy research, indigestibility and less focused research and slow adjustment of policy to research, additional factors have been taken into consideration, namely interest group pressures and pressures from international financial institutions. The contribution of each factor has been scaled from 1 (very weak) to 20 (very significant) and the partial contribution-based scale ranges from "Weakly" to "Marginally", "Significantly" and "Very Significantly". As in the previous outlined cases, each of the four characteristics of the impact of research on the inefficiency of fiscal policy reform in Morocco takes values from 1 to 5.

An important hypothesis of our study is that the context may play a role in the extent of the impact of research on public policies. Indeed, our quantifiable questionnaire for policymakers contains items on the impact of the political, institutional, economic and social context.

Concerning the impact of the political and institutional context, collected data aim at constructing the following indicators:

- The role of the Moroccan Democratic Process and Governance in Enhancing Research Utilization (*in what extent the Moroccan democratic process and governance has contributed*

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[2]- For details on the relationship between research and fiscal policy reform in Morocco, see the country study by Mansouri (2003b).

to enhance research utilization by policy-makers?): the indicator has been constructed relying on a whole scale ranging from 1 (weak contribution) to 20 (very significant contribution) with the partial contribution-based scales ranging from "weak", "marginal", "significant" and "very significant" and each of them takes values from 1 to 5.

- The Contribution of the Government Changeover and the Enthronement of the King Mohamed VI to Enhancing Research in Morocco (*do you think that the government changeover and the enthronement of the King Mohamed VI have contributed to boost research utilization in Morocco?*): as in the precedent case, the three main stages of the policy cycle are taken into account and the same scaling has been applied.

- The Role of Incentives among the Bureaucracy, Transparency and Openness in Research Utilization (*do you think that incentives among the bureaucracy at various levels of the policy hierarchy and the transparency and openness of the bureaucracy are suitable to research utilization in Morocco?*).

- The Contribution of the Bounded Rationality and Short-Term Interests of Policymakers to Research Utilization in Morocco (*do you think that the bounded rationality and short-term interests of policy-makers affect use of reliable research in Morocco?*): The same scaling has applied to measure this indicator and the three main stages of the policy cycle have been taken into consideration.

- Coordination of Actions through the Hierarchy (*are actions from the top through lower levels of the government hierarchy well coordinated so as to enhance research use in policymaking?*) : with the same scaling as in the previous cases, this indicator takes into consideration the three main phases of the policy cycle.

Regarding the impact of the economic and social context, indicators have been constructed using the same scale ranging from 1 to 20 and taking the three main stages of the policy cycle. The following indicators have been constructed exploiting data collected through our quantifiable questionnaire for policymakers:

- The Role of Recent Economic Development in Fostering Research Utilization in Morocco (*do you think that economic development in Morocco over the past years has contributed to foster links between research and policy?*).

- The Quality of Education and Research-Policy Linkages in Morocco (*does the quality of education matters for research-policy linkages in Morocco?*).

- Economic Liberalization, International Integration and Research Utilization (*do you think that recent liberalization and international integration of the Moroccan economy has led to more utilization of reliable policy research?*).

Concerning evidence (research and communication), the following indices have been constructed using the same whole scale ranging from 1 to 20 and the same partial scales ranging from "weak" to "fair/marginal", "good/significant" and "very good/very significant":

- The Quantity of Research Used in Policymaking (*what is the quantity of research you use in policymaking?*).

- The Quality of 'External' and 'In-House' Research (*how do you assess the quality of 'external' and 'in-house' research in terms of rigorous data analysis and use of international evidence?*).

- Topical and Operational relevance of Research for Policymaking (*is research in Morocco topically and operationally relevant for policymaking?*): this indicator distinguishes between 'external' and 'in-house' research. The objective is to see how policymakers assess the topical and operational relevance of these kinds of research.

- The Role of Research in Identifying Problems, Finding Solutions and Filling the Gap in Knowledge (*in what extent 'external' and 'in-house' policy research has succeeded in identifying problems, finding solutions and filling the gap in knowledge in Morocco?*)

- The Degree of Communication of 'External' Research in Morocco (h*ow do you assess the degree of communication of external research in Morocco?*).

- Existence of In-House Offices Working in Reading and Adapting External Research (*do you have offices which work on reading and adapting existing 'external' research' to policymaking?*).

- Organization of Manifestations in Collaboration with External Researchers (*do you organize seminars, conferences and workshops in collaboration with 'external' researchers?*).

- The Role of Formal and Informal Contacts in Research-Policy Links (*do formal and informal contacts with 'external' researchers' matter for the improvement of research-policy links in Morocco?*).

Regarding the links (Bridging) between research and policy, we have constructed some indicators relying on theoretical foundations, the GDN research guidelines and taking into consideration the particular reality of Morocco. Using the same whole scale as above and taking into account the three main stages of the policy cycle, the following indices have been constructed:

- The Role of the Structure of Incentives in Producing and Communicating Research (*do you think that the structure of incentives to produce policy research and to communicate it to policy-makers is suitable to the utilization of research in policymaking?*).

- Cognitive and Institutional Incentives of Policymakers to Consume Research (*do policymakers have adequate cognitive and institutional incentives to learn from existing research and to adapt it to the needs of policymaking?*).

- Contribution of Specific Factors to the Bridging (*How do you assess the contribution of certain mechanisms to the bridging of research and policy in Morocco?*): the selected mechanisms are: i) Formal and informal meetings; ii) Media; iii) NGOs; iv) Working groups; v) Textbooks; vi) Workshops.

- Legitimacy and Trust of Research (*how do you assess the legitimacy and trust of existing research outputs?*): this index also distinguishes between 'external' and 'in-house' research.

- Contribution of the Mobility between Research and Policy Arenas (*do you think that mobility between research and policy arenas has contributed to the strengthening of research-policy linkages?*).

- The Role of the 'Cultural Gap' between Researchers and Policymakers (*how do you assess the 'cultural gap' between researchers and policymakers?*).

Regarding the role of external influences in the bridging of research and policy, we have constructed measured indices relying on our quantifiable questionnaire for policymakers. Accordingly, the following indices have been constructed using the same scale ranging from 1 to 20 as above and taking into account the three main stages of the policy process, namely problem definition, implementation and evaluation/monitoring of public policies:

- The Contribution of Recent external Events like Free Trade Zones (*do you think that recent external factors such as the free trade zones with Europe and the USA have boosted research-policy links in Morocco?*).

- The Role of International Contagion (*in what extent international contagion of democratization, globalization and technological advancement has contributed to research utilization in Morocco?*).

- Criteria of Foreign Funding (*what are the criteria foreign donors take into account to fund relevant policy-based research in Morocco?*).

- Impact of Donor Funding Policies on the Bridging (*How do you assess the impact of donor funding policies on the bridging of research and policy in Morocco?*).

4. Modeling Research Utilization and Research Impact in Morocco: The Methodological Framework and Empirical Analysis

We propose here to conduct empirical analyses exploiting data from our quantifiable questionnaires for researchers and policymakers. Our research paper limits the empirical analysis to the policy stage of "Problem Definition', using a cross-researcher model. The size of our enlarged sample of researchers is 80. Regarding the quantifiable questionnaire for policymakers, we take into account here the three main stages of the policy cycle, namely problem definition, implementation and evaluation/monitoring of public policies. Given that we rely here on the existing sample of 10 policymakers, our research findings should be interpreted with some precautions.

4.1. Research Supply and Research Utilization in Morocco: Empirical Results from a Cross-Researcher Model

As outlined above, the quantifiable questionnaire for researchers aims at collecting data on research utilization and its determinants in Morocco. As already highlighted above, the measured cumulative stages of research utilization may be aggregated to obtain a composite index of research utilization, noted here as *RU*. In line with what theory tells us about determinants of research utilization and taking into account the reality of possible research-policy links in the Moroccan case, we have outlined above the hypothesized explanatory variables of research utilization. As aggregated and measured above, such explanatory variables are:

- The Political, Social and Cultural Context (**CONT**);

- The Qualitative and/or Quantitative Nature of Research (**QQ**);

- The Degree of Digestibility of Research Products (**RD**);

- The Extent of Communication of Research to Planners and Policymakers (**RC**);

- The Synergy between 'External' and 'In-House' Researches (**EIHR**);

- Links between Researchers and Policymakers (**LRP**);

- Policymakers' Perception about Research Quality (**PERC**);

- Domestic Funding of Research (**DF**);

- Impact of Research Funding from Foreign Organization (**EF**);

- Publication of Articles, Books and Articles in Books (**PUB**);

- Learning from Policy-Oriented Research Conducted Abroad (**LFA**).

Therefore, the model to be estimated is as follows:

$$RU_i = a_0 + a_1 .CONT_i + a_2 . QQ_i + a_3 .RD_i + a_4 .RC_i + a_5.EIHR_i$$
$$(+) \qquad (?) \qquad (+) \qquad (+) \qquad (+)$$

$$+ a_6 .LRP_i + a_7 .PERC_i + a_8 .DF_i + a_9 .EF_i + a_{10} .PUB_i + a_{11} .LFA_i + \varepsilon_i$$
$$(+) \qquad (+) \qquad (?) \qquad (?) \qquad (+) \qquad (+)$$

where the index "i" refers to the respondent researcher "i" and   is a random variable with a zero mean and a finite variance.

The above presented model may be considered here as a cross-researcher model, that is a model where the dependent variable (RU) is expected to change across the 80 questioned researchers when the ten considered explanatory variables also change across researchers. In the equation, the expected signs of the parameters a_1, a_2, a_3, ... a_{11} are indicated under the explanatory variables. We expect that the context ($CONT$) would exert a positive and significant impact on research utilization. This means that when the political, institutional, economic and social context improves and becomes suitable to policy-research linkages, research utilization improves. As for the qualitative or quantitative nature of research (QQ), it enters in the model with an ambiguous expected sign. This means that we do not know *a priori* whether policymakers prefer quantitative or qualitative research or a combination of the two. We expect the sign of the parameter associated with the degree of digestibility of research (RD) to be unambiguously positive. This is due to the fact that policymakers do not like sophisticated models and would probably prefer communicable and operational research outputs to use in policymaking. More researchers communicate digestible research outputs to decisionmakers; more would be the likelihood for their research efforts to be adopted in the policymaking process. The expected sign of the parameter associated with communication efforts (RC) is also positive. Our initial hypothesis is that as soon as researchers make efforts to communicate their research to policymakers, their research findings would have more possibility to be consumed by policymakers. The synergy between 'external' and 'in-house' research ($EIHR$) is also expected to positively impact on research utilization in Morocco. The hypothesis which is behind this expected effect is that when 'external' and 'in-house' researches are combined, the complementarity between

researchers in in-house policy research units and 'external' researchers improves and even the "cultural gap" between the communities of policymakers and researchers may disappear. It is also expected that the sign of the parameter associated with the variable termed "Links between Researchers and Policymakers" (*LRP*) would be positive. The reason is that partial indicators composing the index "*LRP*" rely on characteristics which may enhance research-policy links such as the extent of informal contacts with policymakers, information about policymakers research needs, participation to committees, seminars and workshops organized by research users, the extent of the sending of research works and reports to policymakers, and publication of digestible research articles. Since such characteristics may foster research-policy links, they may boost research utilization (*RU*) as well. The expected sign of the parameter associated with policymakers' perception about research quality (*PERC*) is also expected to be positive. The reason is that partial indicators composing the index "*LRP*" contain information on research-policy links such as coincidence of research works with policymakers' needs and expectations, assessment of the degree of research credibility by policymakers, the capacity of researchers to meet the needs of research users and the time required for research to be internalized and applied by policymakers. Since such characteristics may foster research-policy links, they may boost research utilization (*RU*) as well. By contrast, the parameters associated with domestic financing (*DF*) and external financing (*EF*) of research enter in the above-presented model with expected ambiguous signs. This is due to the fact that across the respondent researchers, we do not know whether domestic and external financings of research advantage or disadvantage policy-oriented research meeting the needs of policymakers. By contrast, finally, publication efforts (*PUB*) and researchers' learning from abroad (*LFA*) are expected to exert a positive and significant impact on research utilization in Morocco. Under the hypothesis that research publication meets the needs of decisionmakers and planners and the hypothesis of the willingness of Moroccan policymakers to uptake and adapt existing publications, published research works would probably influence positively research utilization. Since learning from abroad through exploring research works produced abroad, memberships in international networks, international workshops, grants and transmission of research outputs funded by international networks, may boost domestic policy-based research, it would probably enhance knowledge utilization in public policies.

Table 1 presents our estimation and tests for the whole model including all the explanatory variables introduced in the equation. Empirical results show the variable related to the political, social and cultural context is seen to exert a positive and statistically significant impact on research utilization in the Moroccan case.

Table 1: Reaction of Research Utilization to its Main Determinants in Morocco (all the explanatory variables are included in the model)

Dependent Variable: RU

Method: Least Squares

Date: 12/10/04   Time: 11:41

Included observations: 80

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CONT	0.245725	0.101731	2.415426	0.0184
QQ	1.124791	0.513005	2.192554	0.0318
RD	0.399769	0.209166	1.911253	0.0602
RC	0.145621	0.112211	1.297739	0.1988
EIHR	1.032300	0.505845	2.040745	0.0452
LRP	0.023240	0.114082	0.203709	0.8392
PERC	0.525216	0.137245	3.826858	0.0003
DF	-0.030028	0.128687	-0.233345	0.8162
EF	-0.126005	0.137833	-0.914188	0.3638
PUB	0.014429	0.122719	0.117577	0.9067
LFA	-0.105166	0.146327	-0.718702	0.4748
C	-5.233105	2.458344	-2.128712	0.0369
R^2	0.738884	Mean dependent var		11.26800
Adjusted R^2	0.696645	S.D. dependent var		4.274853

     As expected, our empirical results reveal that impact of the context is positive and statistically significant in accordance with theoretical predictions. Even simple calculations show that the correlation between the context and research utilization in Morocco is about 0.62, a value which appears to be relatively significant in comparison with other considered variables (see table 2).

As indicated in table 1, in addition to the political, social and cultural context (*CONT*), the qualitative or quantitative nature of research (*QQ*), research digestibility (*RD*), research communication (*RC*), the synergy between 'external' and 'in-house' research (*EIHR*), and perception of policymakers about research quality (*PERC*) enter with relatively statistically significant coefficients.

The coefficient associated with the variable termed "Learning from Abroad" (*LFA*) has the wrong negative sign but its impact on research utilization is seen to be statistically nonsignificant. Perhaps, involved Moroccan researchers in international research activities are less interested in bridging research and policy. Links between researchers and policymakers (*LRP*), domestic financing (*DF*), external financing (*EF*) and publication (*PUB*) enter also with less statistically significant coefficients. More surprisingly, impact of domestic and external financing, though not statistically significant, is negative. Perhaps, increasing funding of research from domestic and foreign organizations is not oriented toward policy needs of decisionmakers and, therefore, does not lead to improving research utilization. Future further discussions with researchers and policymakers will allow us to test this hypothesis. Though positive, impact of domestic publications is not statistically significant. Perhaps, research publication assets in Morocco do not meet the needs of research users leaving their impact on research utilization less statistically significant.

Even though the impact of the variable termed "Links between Researchers and policymakers" (*LRP*) is positive, its coefficient turns to be statistically less significant (probability = 0.84). We think that there are at least two reasons for this statistical non-significance. The first reason is that the constructed index (*LRP*) aggregates subjective information collected through responses to our quantifiable questionnaire for researchers. The credibility of such subjective information crucially depends itself on the degree of information among researchers about the assessment of their research characteristics by decisionmakers. Perhaps, among the questioned researchers, there are those who badly evaluated their links with policymakers while they consider their research works as transmissible, communicable and applicable in the policymaking process. The second reason is that our sample of researchers is not large enough to get more reliable empirical results from the estimated cross-researcher model.

Table 2: Simple Correlations between Research Utilization and its Main Determinants in Morocco (Based on the Quantifiable Questionnaire for Researchers)

Variable	Correlation with *RU*
CONT	0.62
QQ	0.66
RD	0.76
RC	0.48
EIHR	0.61
LRP	0.62
PERC	0.60
DF	0.50
EF	0.42
PUB	0.27
LFA	0.47

Removing step by step (according to the degree of statistical significance) the explanatory variables entering with less statistically significant coefficients in table 1, we have obtained estimates and tests summarized in table 3. The dependent variable (*RU*) is presented in graph 1 and the explanatory variables entering with statistically relative significant impact on research utilization in Morocco are presented in graph 2.

Empirical results presented in table 3 indicate that the major variables that finally influence research utilization in Morocco are: i) The political, social and cultural context (*CONT*); ii) The qualitative or quantitative nature of research (*QQ*); iii) Research digestibility (*RD*); iv) Research communication (*RC*); v) Perception of policymakers about the quality of research (*PERC*); vi) The degree of synergy between 'external' and 'in-house' research (*EIHR*); vii) External financing (*EF*). While the first six listed variables have been seen to exert positive impact on research utilization, in line with our initial hypotheses, the seventh explanatory variable (*EF*) is seen to have a negative and relatively statistically significant impact (at more than 17 percent of significance) on research utilization in the Moroccan case. This means that researchers who generally benefit from research financing from abroad perform less in transmitting their researches to policymakers and influencing decisionmaking in public policies. Perhaps, externally financed research does not necessarily meet the needs of planners and policymakers in Morocco. According to our empirical results reported in table 3; 6 point increase in the index of the external financing of research across the questioned researchers would result in about 1 point depression in research utilization as measured. However, because impact of external financing of research is not statistically significant at 5 percent, it may be removed from the initial model. When this variable is removed and the equation is re-estimated across our sample of 80 researchers, all the six remaining variables still meet our initial hypotheses.

Concerning the explanatory variables which meet our initial hypotheses, it is important to underline that the impact of political, social and cultural context (*CONT*) has the most powerful impact in terms of statistical significance (probability = 0.012). In terms of the impact magnitude, however, the degree of synergy between 'external' and 'in-house' research has the most powerful influence on research utilization in the Moroccan case (for measurement of the dependant variable and the statistically significant variables, see graphs 1 & 2). Indeed, 1 point increase in the constructed index for this variable would induce about 1.11 point increase in the index of research utilization as measured. This empirical result reveals that enhancing policy-research linkages in Morocco would require cooperation efforts between 'external' and 'in-house' researchers. Unfortunately, as shown through our discussions with certain collaborators of policymakers in the Moroccan Ministry of Finance, there is less collaboration in this area. We even observe that a real cultural gap between researchers and policymakers exists in reality. In this sense, discussions with researchers and policymakers reveal that neither researchers nor policymakers have the willingness and the capacity to increase interactions between 'external' and 'in-house' research.

Table 3: Reaction of Research Utilization to its Main Determinants in Morocco (only variables with statistically significant impact are included)

Dependent Variable: RU

Method: Least Squares

Date: 12/11/04   Time: 19:22

Included observations: 80

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CONT	0.241840	0.093559	2.584887	0.0118
QQ	0.980611	0.434453	2.257117	0.0270
RD	0.358723	0.190036	1.887652	0.0631
RC	0.160910	0.107071	1.502835	0.1373
EIHR	1.113446	0.476179	2.338293	0.0222
PERC	0.538110	0.120608	4.461658	0.0000
EF	-0.168405	0.122994	-1.369211	0.1752
C	-5.335543	2.148017	-2.483939	0.0153

R^2	0.736089	Mean dependent variable		11.26800
Adjusted R^2	0.710431	S.D. dependent variable		4.274853

Graph 1: The Measured Index of Research Utilization

RU
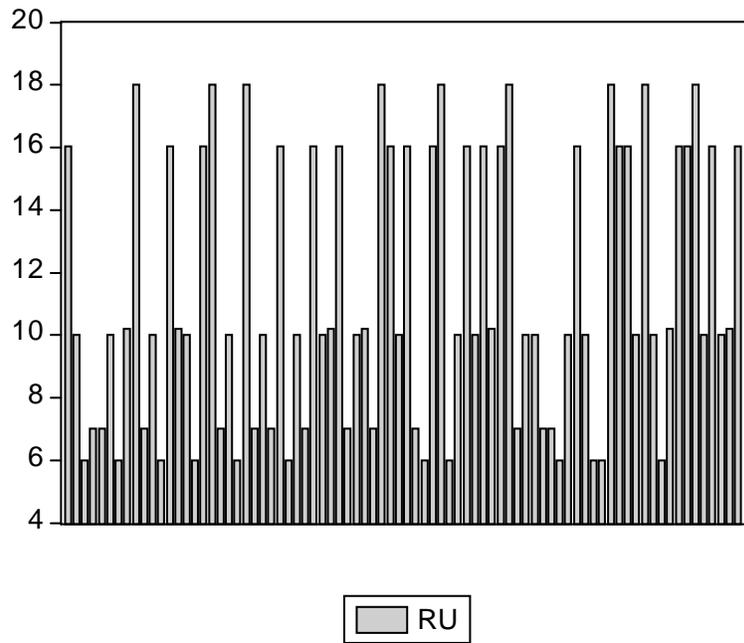
Graph 2: Measured Indices of Determinants of Research
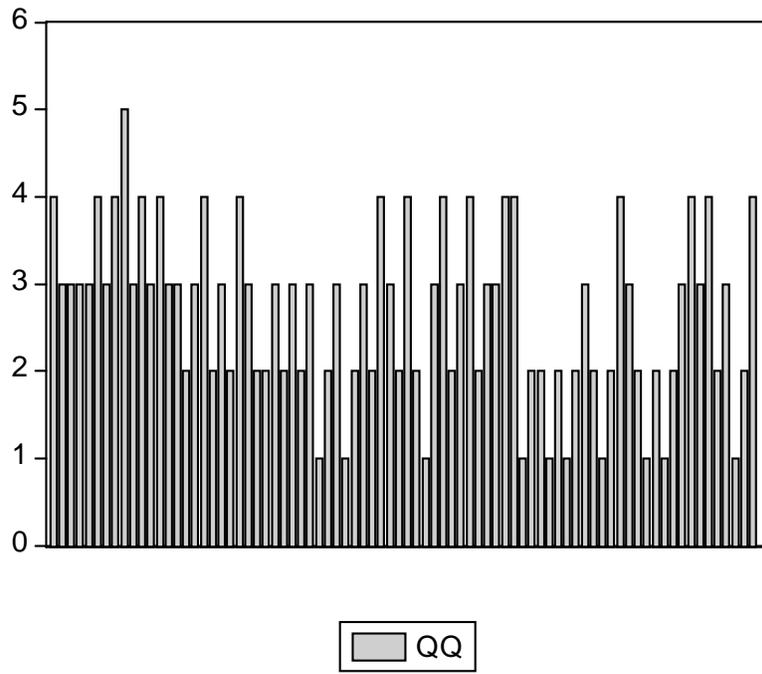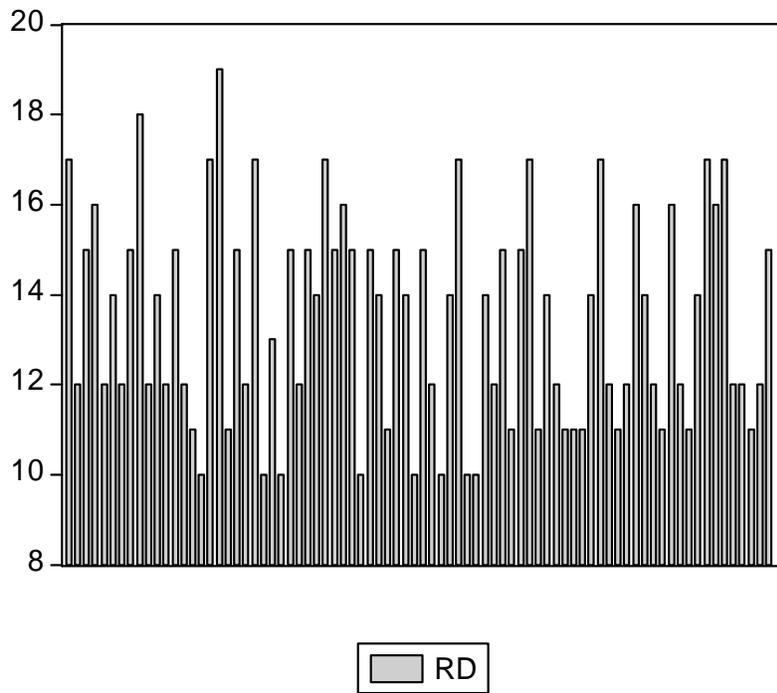Utilization (*RU*) Entering with
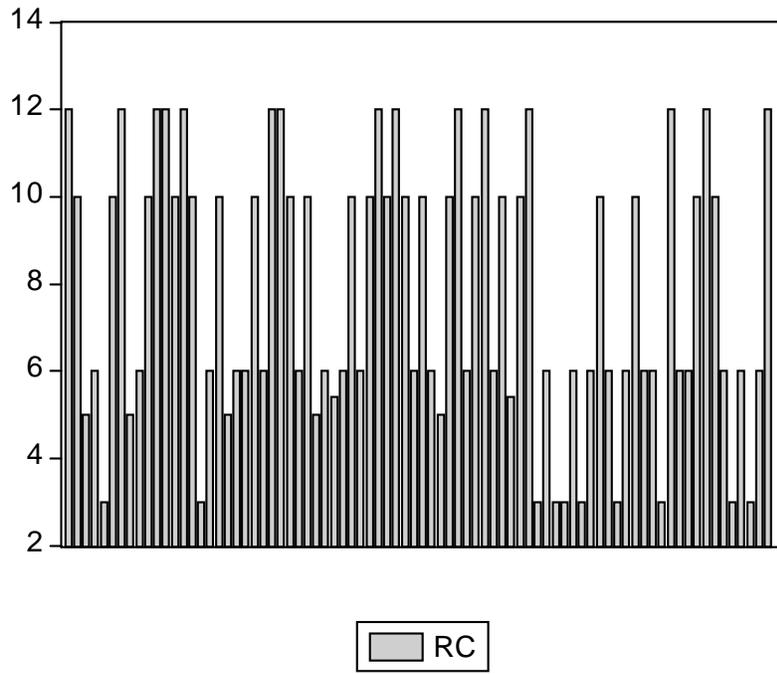Statistically Significant Impact

CONT

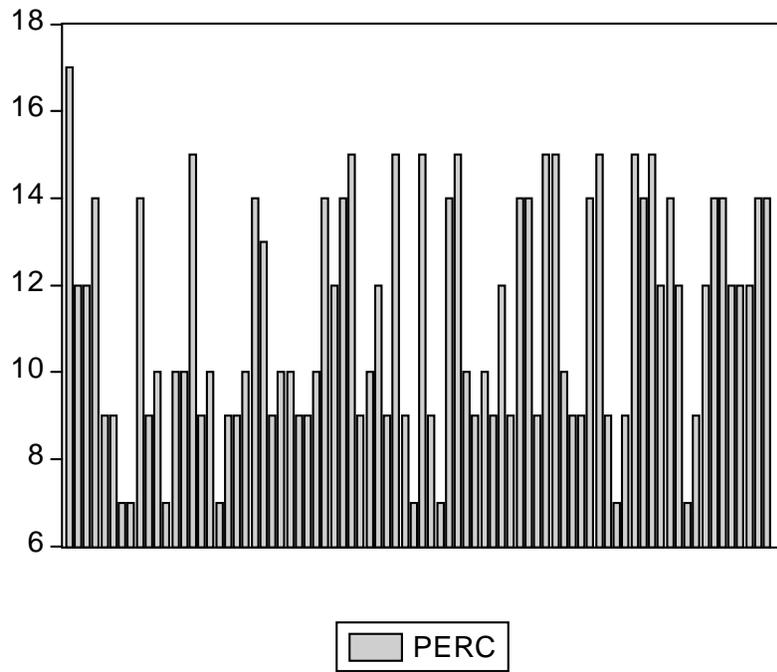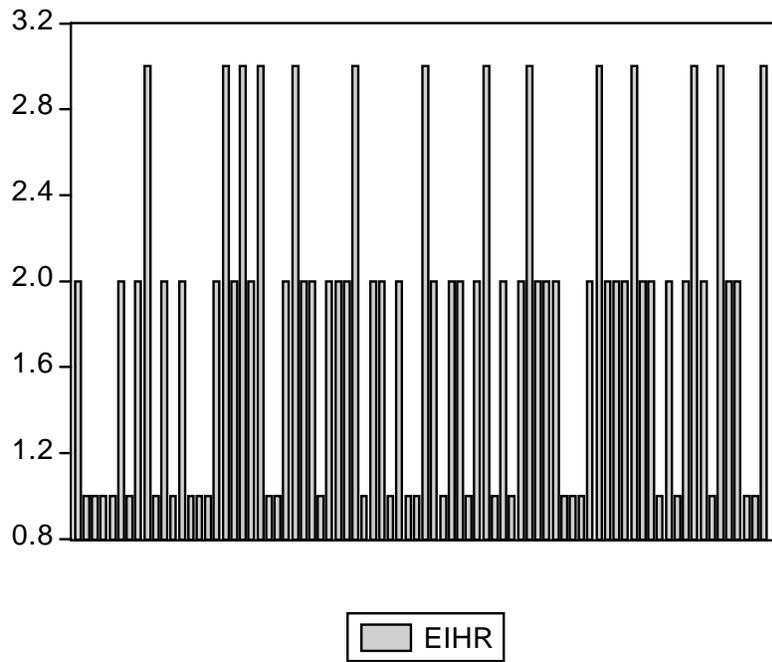**Graph 2** (*continued*)

QQ
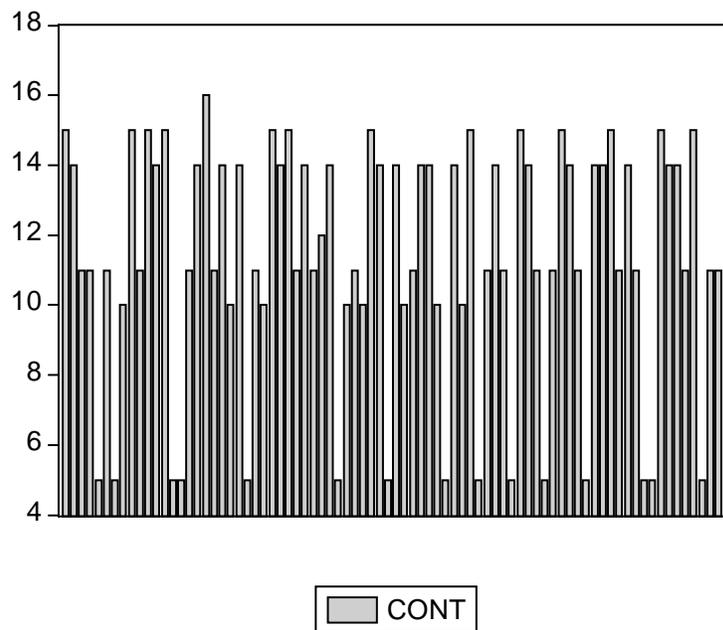
Graph 2 (*continued*)

RD

Graph 2 (*continued*)
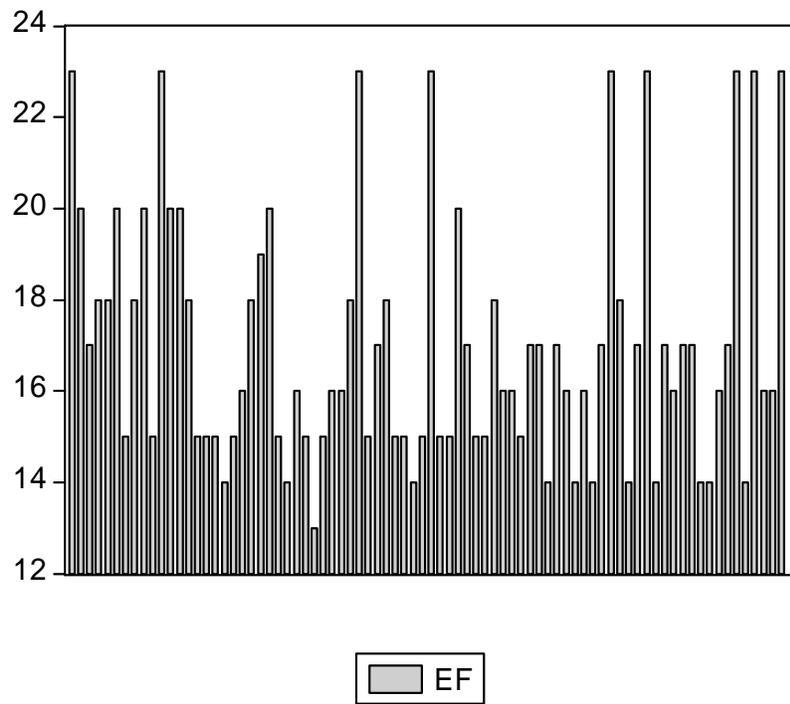

RC

Graph 2 (*continued*)

PERC

Graph 2 (*continued*)

EIHR

Graph 2 (*continued*)

EF

In terms of the importance of explanatory variables in explaining research utilization, the second factor consists of the quantitative or qualitative nature of research (*QQ*). Our empirical results reported in table 3 show that as soon as research is oriented toward a combination of quantitative and qualitative research, research utilization improves. According to our estimates and tests, 1 point increase in the indicator of the qualitative or quantitative nature of research would result in about 1 point increase in the constructed index of research utilization. This means that policymakers in Morocco would probably prefer research works that combine quantitative and qualitative research tools. Indeed, many researchers have declared to us that professors in universities and institutes in Morocco are not obliged to use quantitative techniques in their policy analyses. Policymakers, however, stress the importance to use quantitative analyses to better understand policy phenomena. We think that the better way may be found between these two extremities. As highlighted through our empirical results, 'external' and 'in-house' researchers should work together using qualitative and quantitative analyses to better design, implement and evaluate public policies in Morocco. However, according to our empirical results, there is not only a problem of dosage of qualitative and quantitative analyses but also a problem of digestibility of research outputs regardless of their qualitative or quantitative nature. Indeed, or empirical results reported in table 3 reveal that one point increase in the index of research digestibility would result in about 0.36 point increase in the index of research utilization. This means that research has more chance to be disseminated and applied in the policymaking process when it is more digestible and then more understandable by decisionmakers. Policymakers have pointed out however that existing research works tend to be so sophisticated or vague that its translation in policy actions is difficult and, in some cases, even impossible. Unfortunately, as highlighted from our discussions with many researchers in Morocco, few of them are interested in producing digestible and accessible research outputs. Moreover, perception of policymakers about the quality of produced research (*PERC*) matters much in determining research utilization in Morocco. This means that indicators composing the index "*PERC*", namely 'coincidence of research works with policymakers' needs and expectations', 'assessment of the degree of research credibility by policymakers', 'the capacity of researchers to meet the needs of research users' and the 'time required for research to be internalized and applied by policymakers', generally affect positively research utilization in Morocco. This suggests that the problem is not the quantity of research supplied but basically the problem of the quality of research supply. A more communicable, digestible and credible research has more chance to be internalized and applied by decisionmakers. According to our empirical results reported in table 3, 1 point increase in the index of the "Perception of Policymakers about the Quality of Research" (*PERC*) would result in about 0.54 point increase in the index of "Research Utilization" (*RU*). Regardless of the degree of communicability, digestibility and credibility of the supplied research, fewer efforts to communicate it to research users would result in lower research utilization. This is confirmed by our empirical results in table 3. Indeed, 1 point increase in the index of "Research Communication (*RC*) would induce about 0.16 increase in the index of research utilization (*RU*), suggesting that efforts from researchers to communicate their research findings to policymakers would help to channel research toward public policies and then to enhance research utilization.

Generally speaking, all variables related to the degree of contacts between researchers and policymakers are seen to exert a positive and statistically significant impact on research utilization in Morocco. Indeed, because the tendency to combine quantitative and qualitative variables is seen to positively influence research utilization and such tendency requires collecting reliable data from the policy arenas, this confirms indirectly the major role that links between the two communities of researchers and policymakers play in policy-research linkages and therefore on research utilization. More important is that the degree of research digestibility matters for research utilization in Morocco. This means that when researchers understand the needs of policymakers for accurate, digestible and understandable research outputs, their research efforts will have more chance to be internalized and applied in the policymaking process. Hence, in this case, links between research supply and policy needs matter much. Also important is that "Research Communication" (*RC*) is seen to boost research utilization in Morocco, suggesting that research communication efforts from researchers would enhance links between researchers and policymakers and, therefore, would foster research utilization in the policymaking process. Perception of policymakers about research quality also may enhance

links between researchers and decisionmakers. For this reason, this variable is seen to positively affect research utilization.

4.2.   Research Impact, The Multifaceted Context, Relevance, Links and External Influences: Evidence from a Sample of Moroccan Policymakers

Contrarily to the researchers who have relatively extensively responded to our questionnaire in due time, it has been difficult for us to get reliable additional responses from policymakers in the Ministry of Finance in a convenient time.

Given these considerations, only responses collected from about ten collaborators of policymakers in the Moroccan Ministry of Finance in Rabat have been taken into consideration in this research paper.

The objective of our quantifiable questionnaire for policymakers is to collect data on research impact, the influence of the context, research relevance, research-policy links and external influences from the point of view of policymakers. Since the size of the sample of questioned policymakers is not large enough to get reliable estimates and tests, it is not possible for us to use a cross-policymaker model. In what follows, we propose to limit to statistical analysis to measure research impact and to explore impact of the context, relevance, links and external factors.

First of all, data collected using our quantifiable questionnaire for policymakers have allowed us to measure the extent of the research impact in the key ministerial department of Finance (see tables 4 and 5). Regarding the nature and extent of research, questioned policymakers have argued that basic research influences policymaking relatively significantly. However, basic research is seen to affect more substantially public policies at the stage of problem definition, and less vigorously implementation and evaluation. Indeed, the sum of the scores attributed to the impact of basic research on problem definition across the questioned policymakers is about 109 points on a twenty-point scale against 103 and 94 for evaluation and implementation respectively. This means that in average across the sample, basic research significantly influences problem definition (average = 10.9 ≈ 11) while it marginally affects evaluation (average = 10.3) and more marginally implementation (average = 9.4)[3]. Policy research is seen to more influence public policies at the level of evaluation (average = 11) and implementation (average = 10.3) while its effect on problem definition is seen to be relatively marginal (average = 9.2). Action research is one which more powerfully affects policy especially at the levels of implementation (average = 12) and evaluation (average = 11.7). Impact of action research on problem definition is seen to be relatively less significant (average = 10). All these data from our quantifiable questionnaire for policymakers indicate that decisionmakers need more basic research in the stage of problem definition and more policy and action research in the stage of evaluation and implementation of public policies. Our discussions with certain collaborators of policymakers reveal that these two kinds of research are generally done within in-house research units or conducted by foreign experts. This confirms our finding from the cross-researcher model suggesting that researchers who meet needs of policymakers are those who perform in research-policy links.

Concerning the quantitative or qualitative quality of research, our statistical investigations show that combined quantitative and qualitative researches are used more substantially at the level of evaluation/monitoring of public policies (average across the sample = 12) and problem definition (average = 11.4). Even though combined qualitative and quantitative analyses are also seen to be used at the level of implementation, the magnitude of such combination is less significant (average = 10.7). This indicates that the policymaking process needs more combined quantitative and qualitative research basically at the levels of problem definition and evaluation of public policies. Unfortunately, many researchers in Morocco are interested either in more qualitative studies or in more quantitative

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[3]- Note that in our quantifiable questionnaire for policymakers, impact is weak when the score is between 1 and 5, marginal when the score is between 6 and 10, significant when the score is between 11 and 15 and very significant when the score is between 16 and 20.

analysis. As confirmed by our empirical results using a cross-researcher model (table 3), combined quantitative and qualitative research has more chance to be channeled, internalized and applied in the policymaking process. However, as confirmed by our empirical results from the cross-researcher model, without research communication and digestibility efforts, links with policymakers and increasing synergy between 'external' and 'in-house' researchers, combined quantitative and qualitative analyses will not have the desired impact on public policies.

As for the use of 'external' and 'in-house' research, our statistical study reveals that policymakers use more combined 'external' and 'in-house' research at the level of problem definition (average across the sample = 12.3 against 10.5 and 10.3 for the stages of evaluation and implementation respectively)[4]. This means that the synergy between 'external' and 'in-house' research is more needed in the Moroccan policymaking process especially at all levels of the policy cycle, but more vigorously at the level of problem definition.

How do 'external' and 'in-house' researches perform in terms of their impact on the three main stages of the policy cycle? Our statistical investigations reveal that even at the level of problem definition, 'in-house' research affects more substantially public policies. Indeed, in this case, the average across the sample amounts to 12.3 against 10.7 for 'external' research. 'In-house' research is seen to influence more vigorously public policies at the levels of implementation (average = 11.9 against 10 for external research) and evaluation (average = 11.5 against 10.6 for external research). Discussions with certain collaborators of policymakers have pointed out in this framework that some 'external' research works are too much theoretical and vague, and, therefore, policymakers prefer 'in-house' research, especially at the levels of implementation and evaluation of public policies.

What about the speed of research impact on public policies? Our statistical analysis reveals that the speed is generally slow regardless of the various stages of the policy process (see table 5). Indeed, on a twenty-point scale ranging from 1 to 20, the average across the sample of policymakers amounts to 9.1 for problem definition against 8.4 for evaluation and 8.3 for implementation, suggesting that time is needed for research to be incorporated into policy. As a policymaker has said in reaction to our question about the speed of research impact, in line with the "enlightenment school" of knowledge utilization, "impact of research is not immediate; it is indirect".

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[4]- 'In-house research is generally produced within the various Directorates of the Ministry of Finance. Such Directorates are: i) The Administration of Customs and Indirect Taxes; ii) The General Treasury of the Kingdom; iii) The Directorate of Taxes; iv) The Directorate of Budget; v) The Directorate of Public Services and Participations; vi) The Directorate of Treasury and External Finances; vii) The Directorate of Financial Studies and Forecasting (currently called the Directorate of General Economic Policy); viii) The Directorate of Public Assets; ix) The Directorate of the Control on Public Expenditures; x) The Directorate of Administrative and General affairs; xi) The Judicial Agency of the Kingdom. Produced in-house research includes specialized reviews, research reports and research bulletins.

Table 4: Nature of the Research Used in the Policymaking Process

Issues and policies	Total Score	Average	Observation
1.1. Nature and extent of research			
• Basic Research	102	10.2	Marginal
Problem Definition	109	10.9	Significant
Implementation	94	9.4	Marginal
Evaluation	103	10.3	Marginal
• Policy Research	102	10.2	Marginal
Problem Definition	92	9.2	Marginal
Implementation	103	10.3	Marginal
Evaluation	110	11.0	Significant
• Action Research	112	11.2	Significant
Problem Definition	100	10	Marginal
Implementation	120	12	Significant
Evaluation	117	11.7	Significant
1.2. Qualitative/Quantitative Research	***114***	***11.4***	***Combined***
Problem Definition	114	11.4	Combined
Implementation	107	10.7	Lower combin.
Evaluation	120	12.0	Combined
1.3. External/In-House Research	110	11.0	Combined
Problem Definition	123	12.3	Combined
Implementation	103	10.3	Less combined
Evaluation	105	10.5	Less combined
1.4. Impact of external and in-house research			
External	104	10.4	Less significant
In-house	119	11.9	Significant
Problem Definition			
External	107	10.7	Less significant
In-house	123	12.3	Significant
Implementation			
External	100	10.0	Less significant
In-house	119	11.9	Significant
Evaluation			
External	106	10.6	Less significant
In-house	115	11.5	Significant

Table 5: Impact and Influence of Research

Issues and Policies	Total score	Average	Observation
1.5. *Speed of the Research Impact*	***86***	***8.6***	***Slow***
Problem Definition	91	9.1	Slow
Implementation	83	8.3	Slow
Evaluation	84	8.4	Slow
1.6. Extent of the Impact on Specific Policies			
• Fiscal Policy	88	8.8	Lower
Problem Definition	95	9.5	Lower
Implementation	87	8.7	Lower
Evaluation	82	8.2	Lower
• Social policy			
Problem Definition	81	8.1	Weak
Implementation	77	7.7	Weak
Evaluation	79	7.9	Weak
• Agricultural Development	85.7	8.6	Less significant
Problem Definition	86	86	Less significant
Implementation	80	80	Less significant
Evaluation	91	91	Less significant
• Regional Integration	74.7	7.5	Lower
Problem Definition	80	8.0	Lower
Implementation	70	7.0	Lower
Evaluation	74	7.4	Lower
1.7. Agendas, arguments, horizons, objectives and strategies			
Problem Definition	94	9.4	Weak
Implementation	93	9.3	Weak
Evaluation	90	9.0	Weak
1.8. Laws, regulations, institutions and capacities	91	9.1	Less significant
Problem Definition	90	9.0	Less significant
Implementation	90	9.0	Less significant
Evaluation	94	9.4	Less significant

Table 5 (*continued*)

Issues and Policies	Total score	Average	Observation
1.9. Major factors that affected transition from interventionist to neo-liberal policies			
Economic and social crisis	100	10	Less significant
Foreign pressures	137	13.7	Significant
International contagion	117	11.7	Significant
Regional integration	91	9.1	Less significant
Intuitive observations of policymakers	73	7.3	Weak
In-house research	89	8.9	Less significant
External research	92	9.2	Less significant
Research from abroad	122	12.2	Significant
1.10. Contribution of research to better understand poverty	**79**	**7.9**	Less significant
Problem Definition	76	7.6	Less significant
Implementation	75	7.5	Less significant
Evaluation	87	8.7	Less significant
1.11. Impact of research on the signature of FTA (Europe and USA)			
With Europe	86	8.6	Less significant
With the USA	91	9.1	Less significant
1.12. Factors that contributed to the inefficiency of fiscal policy			
Interest Group Pressures	91	9.1	Less significant
Pressures from IFI	85	8.5	Weaker
Unavailability of Relevant Research	111	11.1	Significant
Less Policy-oriented and Targeted Research	111	11.1	Significant
Slow adjustment of policies to research	114	11.4	Significant

How does research affect specific policies in Morocco? This question has been posed to policymakers in order to understand in what extent policymakers use research in policies which are of particular importance for economic and social development of Morocco (see table 5). As already mentioned, the selected specific policies are fiscal policy, social policy (poverty alleviation), agricultural development, and regional integration. Generally, the questioned collaborators of policymakers have responded that research has less significant impact on fiscal policy regardless of the stages of the policy cycle. Effectively, in the case of fiscal policy, the average across the sample amounts to 9.5 for problem definition against 8.7 and 8.2 for implementation and evaluation/monitoring respectively. This confirms our findings in the framework of a previous case study on research utilization in fiscal policy reform in Morocco (see Mansouri, 2003b) as well as in the Arab World in general (see Mansouri, 2004a; see also Mansouri, 2004b). Moreover, an additional question has been posed to policymakers to know how research, among other factors, contributed to the inefficiency of fiscal policy reform in Morocco (cutting public investment expenditures and maintaining and even extending public consumption). Questioned policymakers have estimated that the slow adjustment of fiscal policy to research is the main determinant of the inefficiency of fiscal

policy reform (average = 11.4) (see item 1.12; table 5). The second determinant is seen to be the unavailability of relevant policy research (average = 11.1) and the existence of less relevant and less targeted policy-oriented research (average = 11.1). Impact of the other considered factors appears to be relatively less significant (average = 9.1 for interest group pressures against 8.5 for pressures from international financial institutions).

As for the other specific policies, our data processing also reveals that research has less significant impact (see table 5). Indeed, in the case of social policy, the average across the sample is 8.1 for problem definition against 7.9 for evaluation and 7.7 for implementation, suggesting that on a twenty-point scale ranging from 1 to 20, impact of research on social policy is seen to be marginal. Impact of research on agricultural development is also seen to be less significant (average = 9.1 for evaluation against 8.6 for problem definition and 8.0 for implementation). Since agriculture is a key sector within the Moroccan economy, research has to play its role in identifying the real problems of the sector, to design more efficient policies to tackle them and to help to implement policies and to evaluate and monitor them. Impact of research on the regional integration of the Moroccan economy appears to be also weak (average = 8 for problem definition against 7.4 for evaluation and 7 for implementation). The paradox is that the Moroccan economy is more and more integrated and liberalized in an environment where reliable research on benefits and costs of this process is practically nonexistent.

The questioned policymakers have responded that policy agendas, arguments, horizons, objectives and strategies reflect less significantly problems, priorities and approaches implied by research outputs in Morocco regardless of the type of the stage of the policy cycle. In this case, statistically speaking, the average across the sample amounts to 9.4 for problem definition, 9.3 for implementation and 9 for evaluation of public policies. A similar less significant impact is observed for the relationship between law, regulations, institutions and capacities in one hand and problems, priorities and approaches implied by research. The questioned policymakers estimated that law, regulations, institutions and capacities reflect less significantly problems, priorities and approaches implied by research (average = 9 for problem definition and implementation against 9.4 for evaluation).

To see how research has contributed to the shift from the Keynesian to Neoliberal policy paradigms in Morocco, policymakers have estimated that foreign policy research has the most powerful impact (average = 12.2) while external and in-house researches have less significant effect with averages amounting respectively to 10.2 and 10.0 respectively (see table 5). Other factors such as pressures from international financial institutions (average = 13.7) and international contagion (average = 11.7) seem to exert more significant impact on the transformation of paradigms. Impact of the economic and social crisis, regional integration and intuitive observations of policymakers, entering respectively with averages of 10, 9.1 and 8, appear to have less significant impact. In sum, external factors seem to have the most powerful effect on paradigm transformations while domestic factors, including 'external' and 'in-house' research, are seen to exert less significant impact on such transformations. Well, the best way to conduct efficient shifts in policy paradigms is to enhance domestic 'external' and 'in-house' research in order to better understand gains and losses from policy changes in the *particular* reality of Morocco. Increasing 'external' and 'in-house' research within the country would be able to design, implement and evaluate policies devoted to economic and social development.

Concerning the contribution of research to the understanding of poverty, the questioned policymakers estimated that the impact is marginal (with averages of 7.6 for problem definition, 7.5 for implementation and 8.7 for evaluation). Paradoxically, Morocco has been recently engaged in a wide program of poverty alleviation in an environment of unavailability of reliable research to better understand determinants of poverty (problem definition), to implement policies against poverty (implementation) and to evaluate the existing poverty programs (evaluation).

Another paradox concerns the weak contribution of research to the understanding of possible gains and losses from the free trade agreements (FTA) with Europe and the USA. Indeed, the questioned policymakers estimated in average that the contribution of research to the signature of such free trade

agreements is marginal (average = 8.6 for the FTA with Europe against 9.1 for the FTA with the USA). Normally, reliable research is particularly needed to better understand opportunities of regional integration and liberalization of the Moroccan economy before signing any free trade agreements. Unfortunately, for our knowledge, the Moroccan government has never presented a call for proposals or papers to invite researchers to conduct research in this area.

Let us now return to the contribution of the multifaceted context on research impact and influence in Morocco (see table 6). Let us start with the influence of the political and institutional context. Surprisingly, the questioned policymakers estimated that the Moroccan democratic process and the quality of governance in the country do not affect very significantly research impact in Morocco (table 6). These political and institutional components of the context enter with across-the-sample averages of 91, 102 and 107 for problem definition, implementation and evaluation of public policies respectively. On a twenty-point scale ranging from 1 to 20, impact of the government changeover of 1998 and the enthronement of the King Mohamed VI have also been seen to not affect research impact very significantly (average = 10.6 for problem definition against 10.7 and 10.4 for implementation and evaluation respectively).

Table 6: Impact of the Context on Research Utilization in Morocco

Issues and Policies	Total score	Average	Observation
1.13. Impact of the political and institutional context			
• Impact of Democracy and Governance	100	10.0	Relativ. Significant
Problem Definition	91	9.1	Less Significant
Implementation	102	10.2	Relativ. Significant
Evaluation	107	10.7	Significant
• Impact of the Political Changeover and the Enthronement of the New King Mohamed VI	106	10.6	Significant
Problem Definition	106	10.6	Significant
Implementation	107	10.7	Significant
Evaluation	104	10.4	Relat. Significant
• Impact of Incentives, Transparency and Openness of the Administration	111	11.1	Significant
Problem Definition	115	11.5	Significant
Implementation	104	10.4	Relat. Significant
Evaluation	113	11.3	Significant
• Impact of the Bounded Rationality and Short Term Interests of Policymakers	110	11.0	Significant
Problem Definition	107	10.7	Significant
Implementation	113	11.3	Significant
Evaluation	111	11.1	Significant
• Coordination through the Governmental Hierarchy	86	8.6	Less Significant
Problem Definition	87	8.7	Less Significant
Implementation	85	8.5	Less Significant
Evaluation	85	8.5	Less Significant

Table 6 (*Continued*)

Issues and Policies	Total score	Average	Observation
1.14. Impact of the Economic and Social Context			
• <u>Impact of Economic Development</u>			
Problem Definition	90	9.0	Less Significant
Implementation	97	9.7	Less Significant
Evaluation	98	9.8	Less Significant
• <u>Impact of the Quality of Education</u>			
Problem Definition	127	12.7	Significant
Implementation	127	12.7	Significant
Evaluation	126	12.6	Significant
- <u>Impact of Economic Liberalization and Integration</u>			
Problem Definition	107	10.7	Relat. Significant
Implementation	102	10.2	Less Significant
Evaluation	106	10.6	Relat. Significant

Impact of incentives, transparency and openness of the administration have been seen to exert more significant impact on research influence especially at the levels of problem definition and evaluation (entering with averages of 11.5 and 11.3 respectively against 10.4 for implementation). According to certain public servants at the Moroccan Ministry of Finance, when the government provides them with interesting incentives and the administration is transparent and open, 'in-house' research is encouraged and even 'external' research becomes more needed. More interesting regarding our data collected using the quantifiable questionnaire is that policymakers recognize that the bounded rationality and short-term interests of decisionmakers significantly affect research impact in Morocco. In this case, the averages range from 10.7; 11.1 and 11.3 respectively for problem definition, evaluation and implementation. This confirms the initial theoretical hypothesis and indicates that researchers, when producing and communicating their research findings, they should take into account the bounded rationality of policymakers. Moreover, a true democratic system is needed to let decisionmakers to not act in policymaking according to their short-term interests.

The questioned policymakers estimated that actions through the government hierarchy are not well coordinated to better foster links between research and policy. According to our collected data, the averages across the sample amount to 8.7 for problem definition and 8.5 for implementation ad evaluation. In an environment of weak coordination, policy-research linkages are generally weak.

Let us now move to the impact of economic and social context (see table 6). The questioned policymakers have estimated that recent economic and social development in Morocco has not

contributed very significantly to policy-research linkages (average = 9.0 for problem definition against 9.7 and 9.8 for implementation and evaluation respectively). This means that, at least in the short and medium run, development does not affect research impact. Economic and social development needs more time to help research to be incorporated into policy. All the questioned policymakers have estimated that the quality of education crucially determines research-policy linkages. Indeed, in all the stages of the policy process, impact of the quality of education on research impact is seen to be relatively significant (average = 12.7 for problem definition and implementation against 12.6 for evaluation/monitoring). The quality of education influences not only the quality of research supply but also the extent of social demand for research. Concerning the impact of economic liberalization and integration on research-policy links in Morocco, policymakers have responded that its effect would be relatively significant for the stages of problem definition and evaluation (with averages of 10.7 and 10.6 respectively) while the impact on research at the stage of implementation is seen to be less significant (average = 10.2). These findings reveal that utilization of research at the stage of implementation depends on domestic economic, political, social and cultural factors rather than on external developments.

Table 7: Evidence (Research and Communication)

Issues and Policies	Total score	Average	Observation
1.15. The Quantity of Research Used in Public Policies			
Problem Definition	100	10.0	Less Significant
Implementation	95	9.5	Less Significant
Evaluation	100	10.0	Less Significant
1.16. The Quality of External and In-House Research			
Problem Definition:			
External	92	9.2	Less Significant
In-house	101	10.1	Relat. Significant
Implementation:			
External	86	8.6	Less Significant
In-house	103	10.3	Relat. Significant
Evaluation:			
External	105	10.5	Significant
In-house	106	10.6	Significant
1.17. Topical and operational relevance of research			
Problem Definition:			
External	99	9.9	Less Significant
In-house	111	11.1	Significant
Implementation:			
External	85	8.5	Weak
In-house	115	11.5	Significant
Evaluation:			
External	103	10.3	Relat. Significant
In-house	111	11.1	Significant

The second set of factors that may affect research impact in Morocco is related to research evidence (research and communication). The first question in this framework consists of the quantity

of research decisionmakers use in the policymaking process (see table 7). In average, the questioned policymakers estimated that such research quantity is less significant regardless of the stages of the policy cycle. Indeed, the average across the sample ranges from 10 in the case of problem definition and evaluation to 9.5 for implementation (see table 6). These empirical results reveal that the policymaking process in Morocco across the various phases of the policy cycle does not consume adequate research.

Table 7 (*Continued*)

Issues and Policies	Total score	Average	Observation
1.18. The Capacity of Research to Identify Problems and Find Solutions			
Problem Definition:			
External	89	8.9	Less Significant
In-house	104	10.4	Relat. Significant
Implementation:			
External	93	9.3	Less Significant
In-house	113	11.3	Significant
Evaluation:			
External	97	9.7	Relat. Significant
In-house	116	11.6	Significant
1.19. Communicability of External Research			
Problem Definition	92	9.2	Less Significant
Implementation	81	8.1	Weak
Evaluation	86	8.6	Weak
1.20. Availability of Specialized Services to Read and Adapt Research			
Problem Definition	62	6.2	Weaker
Implementation	60	6.0	Weaker
Evaluation	60	6.0	Weaker
1.21. Manifestations in Collaboration with External Researchers			
Problem Definition	88	8.8	Nonsignificant
Implementation	75	7.5	Weaker
Evaluation	90	9.0	Less Significant
1.22. Importance of Formal and Informal Contacts with Policymakers			
Problem Definition	126	12.6	Significant
Implementation	120	12.0	Significant
Evaluation	119	11.9	Significant

What is the quality of 'external' and 'in-house' research consumed in the policymaking process? Collected data reveal that 'in-house' research tends to have better quality than 'external' research. According to a questioned policymaker, "*in-house research in Morocco has recently received an important attention*". The average for 'in-house' research amounts to 10.1; 10.3 and 10.6 for problem

definition, implementation and evaluation respectively against 9.2; 8.6 and 10.5 for 'external' research. This reflects the fact that policymakers tend to advantage 'in-house' research because, according to them, 'external' research is too theoretical and vague that it is difficult, even impossible, to incorporate it into public policies. This is confirmed by the assessment among policymakers of the topical and operational relevance of 'external' and 'in-house' research in Morocco. According to our collected data, 'in-house' research is topically and operationally significantly relevant with averages ranging from 11.1 for problem definition and evaluation/monitoring of public policies and 11.5 for implementation.

The higher index for implementation indicates that 'external' researchers are less involved in the implementation stage of the policy cycle. Effectively, the average for 'external' research amounts to only 8.5, suggesting that 'external' research does not affect significantly implementation of public policies. 'External' research is more topically and operationally relevant in the case of problem definition (average = 9.9) and, basically, in the case of evaluation/monitoring of public policies (average = 10.3). Researchers in Morocco should normally work in favor of the strengthening of policy-linkages, especially at the level of implementation of public policies. Such research should be operational and communicable. Following our empirical results using our quantifiable questionnaire, policymakers realize that 'external' research is less significantly communicable (average = 8.1 for implementation against 8.6 for evaluation and 9.2 for problem definition). Again, in line with our theoretical review, this means that 'external' financing is less interested with implementation of public policies. However, our statistical investigations reveal that policymakers do not make efforts to explore and adapt the existing 'external' research outputs. Do directorates in the Ministry of Finance and Privatization have offices specialized in adapting existing 'external' research outputs to their policy needs? To this question, policymakers respond that such adaptation efforts are marginal at the various levels of the policy process (average = 6 for implementation and evaluation against 6.2 for problem definition on a twenty-pointy scale ranging from 1 to 20). To enhance the synergy between 'external' and 'in-house' research, further efforts are needed in terms of adaptation of 'external' research to the needs of policymaking. Much effort is also needed in terms of organization of meetings, conferences and workshops within the Ministry of Finance in collaboration with 'external' researchers. To the question whether manifestations are organized in collaboration with 'external' researchers, the questioned policymakers in average respond that it does not significantly hold (average = 9.9 for evaluation against 8.8 for problem definition and 7.5 for implementation). However, policymakers stressed that the formal and informal contacts with 'external' researchers matter for the bridging of research and policy in Morocco. At the level of problem definition, the average across the sample is about 12.6 for problem definition against 12 for implementation and 11.9 for evaluation/monitoring of public policies. The problem in Morocco is that the enhancement of such contacts may be hindered by the existing 'cultural gap' between researchers and policymakers.

Table 8: Links between Research and Policy: The Bridge

Issues and Policies	Total score	Average	Observation
1.23. Structure of Incentives and Research Utilization			
Problem Definition	97	9.7	Less Significant
Implementation	97	9.7	Less Significant
Evaluation	90	9.0	Less Significant
1.24. Decisionmakers' Cognitive and Institutional Incentives			
Problem Definition	93	9.3	Less Significant
Implementation	104	10.4	Less Significant
Evaluation	104	10.4	Relat. Significant
1.25. Contribution of Certain Mechanisms to the Links			
Formal and informal meetings	112	11.2	Significant
Media	105	10.5	Realat. Significant
NGOs	101	10.1	Less Significant
Working groups	103	10.3	Relat. Significant
Manuals	106	10.6	Relat. Significant
Workshops	115	11.5	Significant
1.26. Legitimacy and Trust of Research			
Problem Definition:			
External research	94	9.4	Less Significant
In-house research	112	11.2	Significant
Foreign research	119	11.9	Significant
Implementation:			
External research	94	9.4	Less Significant
In-house research	114	11.4	Significant
Foreign research	112	11.2	Significant
Evaluation			
External research	117	11.7	Significant
In-house research	114	11.4	Significant
Foreign research	119	11.9	Significant

Table 8 (*Continued*)

Issues and Policies	Total score	Average	Observation
1.27. The contribution of the Mobility between research and Policy Arenas to the Links			
Problem Definition	131	13.1	Significant
Implementation	114	11.4	Significant
Evaluation	121	12.1	Significant
1.28. the 'Cultural Gap' between Researchers and Policymakers			
Problem Definition	99	9.9	Less Significant
Implementation	108	10.8	Significant
Evaluation	101	10.1	Less Significant

Let us now move to the links (bridge) between research and policy. Statistical findings concerning this aspect are summarized in table 8.

To the question whether the structure of incentives to produce research and to communicate it to decision-makers is suitable to the research utilization in public policies, the questioned policymakers respond that such suitability is marginal (average across the sample = 9.7 for problem definition and implementation against 9 for evaluation/monitoring). This suggests that incentives should be revised so as the bridging of research and policy can be enhanced. Such incentives concern not only policymakers but also 'external' researchers who have stressed that the Moroccan government and the existing institutions do not encourage them to bridge research and policy. Moreover, the questioned policymakers have recognized in average that decisionmakers do not have the adequate required cognitive and institutional incentives to uptake research and to adapt it to their policy needs (average = 9.3 for problem definition against 10.4 for implementation and evaluation).

How do certain mechanisms contribute to the links between policy and research? To this question, policymakers have responded that workshops as well as formal and informal contacts between researchers and policymakers matter much for the bridging of research and policy (see table 8). Indeed, workshops, and formal and informal contacts enter with averages across the sample of about 11.5 and 11.2 respectively against 10.6 for manuals, 10.5 for media, 10.3 for working groups and 10.1 for NGOs. Hence, in conformity with our empirical results from the cross-researcher model, factors related to the degree of contacts and synergy between 'external' researchers and policymakers matter more for the bridging of research and policy.

We have also tried to understand how policymakers view the legitimacy and trust of existing research products. Regarding this issue, policymakers have estimated that 'external' research has significant legitimacy and trust only at the level of evaluation/monitoring of public policies (average = 11.7 against 11.4 for 'in-house' research). However, legitimacy and trust associated with foreign research appear to be more significant not only at the level of evaluation (average = 11.9) but also at the level of problem definition (average = 11.9 against 11.2 at the level of implementation). 'In-house'

research is also seen to be associated with significant legitimacy and trust at the levels of problem definition and implementation with averages of 11.2 and 11.4 respectively (see table 8). Our statistical investigations reveal therefore that policymakers associate less legitimacy and trust to the 'external' research at the levels of problem definition and implementation. In particular, as highlighted from our discussions with certain collaborators of policymakers, 'external' researchers should make efforts to produce digestible research to better define problems to be solved by policies and should also be involved in issues related to the implementation of public policies.

Policymakers also estimated that increasing mobility between research and policy arenas significantly contributes to the links between research and policy. Effectively, our statistical analysis of the collected data reveal that impact of such mobility is significant with averages ranging from 11.4 at the level of evaluation to 12.1 at the level of implementation and 13.1 at the level of problem definition. Once again, in line with our empirical results from the cross-research model, increasing links between research and policy arenas may enhance the bridging of research and policy in Morocco.

Let us now move to external influences on the bridging of research and policy. Regarding this issue, the questioned policymakers have estimated that external events like free trade zones have significantly contributed to the bridging especially at the level of evaluation of public policies with an average of 11.1 against 10.8 for problem definition and implementation (see table 9).

Table 9: External Influences

Issues and Policies	Total score	Average	Observation
1.29. Contribution of External Factors like the Free Trade Zones			
Problem Definition	108	10.8	Significant
Implementation	108	10.8	Significant
Evaluation	111	11.1	Significant
1.30. Contribution of Contagion Effects of Democratization, Globalization and Technological Progress			
Problem Definition	122	12.2	Significant
Implementation	121	12.1	Significant
Evaluation	122	12.2	Significant
1.31. Criteria which Foreign Donors Take into Account to Finance Policy-Oriented Research in Morocco			
Democracy and Governance	128	12.8	Significant
Management of Funds	107	10.7	Significant
Communicability of Research	98	9.8	Less Significant
Links with Decisionmaking	98	9.8	Less Significant
1.32. Impact of Policies of Financing Research from Abroad on Research-Policy Linkages			
- Capacity-building	106	10.6	Relat. Significant
- Encouraging Policy-Oriented Research	100	10.0	Less Significant
- Local Knowledge Incorporation	87	8.7	Weak
- Transfer of Knowledge and Expertise from Abroad	102	10.2	Relat. Significant

Even though policymakers think that research has not significantly convinced Moroccan decisionmakers to sign free trade agreements with Europe and the USA, it seems that regional and international integration of the Moroccan economy has resulted in the necessity of doing more research to better understand the pattern of the economy following integration. Contagion effects of democratization, globalization and technical progress may also contribute to the bridging. This is confirmed by our statistical investigation of the collected data from our quantifiable questionnaire (see table 9). Indeed, regarding this issue, policymakers have estimated that such contagion effects have significantly transformed the way of research use in the policymaking process regardless of the various stages of the policy cycle (average = 12.2 for problem definition and evaluation and 12.1 for implementation). It seems that the contagion factor of democratization helps to get researchers more involved in policy research needs and globalization tends to propagate and generalize the way of thinking in the policy arena. However, it seems that local political, institutional, social and cultural specificities constitute serious obstacles against more powerful research uptake and utilization even in an environment of technological progress. Democracy and governance should be enhanced in Morocco because, according to the questioned policymakers, these factors matter for foreign donors to finance policy-oriented research (average = 12.8). However, our statistical analysis indicates that other more important criteria such as the degree of communicability of research and the links with decision-making matter less for foreign donors. This explains why external financing of research, in our cross-researcher model analyzed above, negatively, though less significantly, affect research utilization in Morocco. Moreover, as highlighted from the collected data from our questionnaire for policymakers, the policies of financing research from abroad seem to relatively enhance capacity-building for research (average across the sample = 10.6) but their impact on encouraging policy-oriented research, local knowledge incorporation and transfer of knowledge and expertise from abroad appears to be less significant (with averages of 10; 8.7 and 10.2 respectively). In fact, the most important criterion foreign donors should take into consideration consists of the extent of links between the funded research and public policies at the main stages of the policy cycle.

5. Some Concluding Remarks and Policy Implications

Our empirical analysis using a cross-researcher model indicates that more quantitative and qualitative researches are combined more the supplied research has more chance to be internalized and applied in the policymaking process. This is confirmed by the statistical investigation of research impact and influence using data from a quantifiable questionnaire for policymakers. This suggests that education and research institutions in Morocco should work in favor of enhancing capacity-building to foster logical thinking and help students, and future and current researchers to understand how data may be collected and how they should be processed in order to grasp public policies at the three main stages of problem definition, implementation and evaluation/monitoring. An efficient statistical apparatus should be set up in order to facilitate the canalization of data to researchers.

However, it is important to stress that the combination of qualitative and quantitative analyses is not sufficient to boost research utilization and strengthen research impact on policy. As highlighted through our empirical analysis using data from quantifiable questionnaires for researchers and policymakers, research communication and digestibility efforts are required. As soon as policymakers consider 'external' research as less communicable, too much theoretical and vague, research will not be incorporated into the policymaking process.

Perception of policymakers about research quality matters for research utilization and impact. When research is considered by policymakers as less pertinent/relevant, less credible and inadequate to meet their needs and expectations, its chance to be internalized and applied will be lower. To enhance research-policy links, researchers and policymakers should lessen to each other. Indeed, the degree of synergy between 'external' and 'in-house' researchers seems to be an important determinant of research utilization and impact in the Moroccan case. While such synergy may narrow the 'cultural gap' between the two communities of researchers and policymakers, it would also help 'external' researchers to better understand the policy arena and policymakers to be aware of the fact that

conceptual and methodological approaches used in 'external' research institutions also matter for the understanding of public policies at the various stages of the policy process. Many researchers in Morocco declare that they are not interested in policy research because, according to them, there is not a "social demand" for research. As for policymakers, they declare that they are less interested in 'external' research because, according to them, there are fewer efforts from 'external' researchers to provide an efficient supply of a relevant policy research. Efforts should be made in the direction of a consensus between researchers and policymakers, permitting to improve research supply taking into consideration policy requirements as well as rigor of scientific analysis. We propose here to set up joint policy research units combining 'in-house' and 'external' researches. The ultimate objective is to better define design, implement and evaluate public policies for development and poverty alleviation.

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