



International
Labour
Office
Geneva

**Employment Sector
Employment Working Paper No. 77**

2011

**Industrial policies and capabilities for
catching up:**

Frameworks and paradigms

Irmgard Nübler

Economic and
Labour Market
Analysis
Department

Copyright © International Labour Organization 2011
First published 2011

Publications of the International Labour Office enjoy copyright under Protocol 2 of the Universal Copyright Convention. Nevertheless, short excerpts from them may be reproduced without authorization, on condition that the source is indicated. For rights of reproduction or translation, application should be made to ILO Publications (Rights and Permissions), International Labour Office, CH-1211 Geneva 22, Switzerland, or by email: pubdroit@ilo.org. The International Labour Office welcomes such applications.

Libraries, institutions and other users registered with reproduction rights organizations may make copies in accordance with the licences issued to them for this purpose. Visit <http://www.ifrro.org> to find the reproduction rights organization in your country.

ILO Cataloguing in Publication Data

Nübler, Irmgard

Industrial policies and capabilities for catching up : frameworks and paradigms / Ꞥc Irmgard Nübler ; International Labour Office, Employment Sector, Economic and Labour Market Analysis Department. - Geneva: ILO, 2011

1 v.

(Employment working paper ; no. 77)

ISBN 978-92-2-124819-4 (print); 978-92-2-124820-0 (web pdf)

ISSN 1999-2939 (print); 1999-2947 (web)

International Labour Office. Economic and Labour Market Analysis Dept.

industrial policy / economic growth / industrial development / economic development / employment / developing countries

08.01.2ILO

Cataloguing in Publication Data

The designations employed in ILO publications, which are in conformity with United Nations practice, and the presentation of material therein do not imply the expression of any opinion whatsoever on the part of the International Labour Office concerning the legal status of any country, area or territory or of its authorities, or concerning the delimitation of its frontiers.

The responsibility for opinions expressed in signed articles, studies and other contributions rests solely with their authors, and publication does not constitute an endorsement by the International Labour Office of the opinions expressed in them.

Reference to names of firms and commercial products and processes does not imply their endorsement by the International Labour Office, and any failure to mention a particular firm, commercial product or process is not a sign of disapproval.

ILO publications and electronic products can be obtained through major booksellers or ILO local offices in many countries, or direct from ILO Publications, International Labour Office, CH-1211 Geneva 22, Switzerland. Catalogues or lists of new publications are available free of charge from the above address, or by email: pubvente@ilo.org

Visit our website: <http://www.ilo.org/publns>

Preface

The primary goal of the ILO is to contribute, with member States, to achieve full and productive employment and decent work for all, including women and young people, a goal embedded in the ILO Declaration 2008 on *Social Justice for a Fair Globalization*¹, and which has now been widely adopted by the international community.

In order to support member States and the social partners to reach the goal, the ILO pursues a Decent Work Agenda which comprises four interrelated areas: Respect for fundamental worker's rights and international labour standards, employment promotion, social protection and social dialogue. Explanations of this integrated approach and related challenges are contained in a number of key documents: in those explaining and elaborating the concept of decent work², in the Employment Policy Convention, 1964 (No. 122), and in the Global Employment Agenda.

The Global Employment Agenda was developed by the ILO through tripartite consensus of its Governing Body's Employment and Social Policy Committee. Since its adoption in 2003 it has been further articulated and made more operational and today it constitutes the basic framework through which the ILO pursues the objective of placing employment at the centre of economic and social policies.³

The Employment Sector is fully engaged in the implementation of the Global Employment Agenda, and is doing so through a large range of technical support and capacity building activities, advisory services and policy research. As part of its research and publications programme, the Employment Sector promotes knowledge-generation around key policy issues and topics conforming to the core elements of the Global Employment Agenda and the Decent Work Agenda. The Sector's publications consist of books, monographs, working papers, employment reports and policy briefs.⁴

The *Employment Working Papers* series is designed to disseminate the main findings of research initiatives undertaken by the various departments and programmes of the Sector. The working papers are intended to encourage exchange of ideas and to stimulate debate. The views expressed are the responsibility of the author(s) and do not necessarily represent those of the ILO.

José Manuel Salazar-Xirinachs
Executive Director
Employment Sector

¹ See http://www.ilo.org/public/english/bureau/dgo/download/dg_announce_en.pdf.

² See the successive Reports of the Director-General to the International Labour Conference: *Decent work* (1999); *Reducing the decent work deficit: A global challenge* (2001); *Working out of poverty* (2003).

³ See <http://www.ilo.org/gea>. And in particular: *Implementing the Global Employment Agenda: Employment strategies in support of decent work*, "Vision" document, ILO, 2006.

⁴ See <http://www.ilo.org/employment>.

Foreword

After the crisis, interest in industrial policy, productive transformation and catch-up growth have made a remarkable comeback both in academic circles and in the policies of governments in many developing countries. Before the crisis, in the halcyon days of free market economics, industrial policy was dismissed as lacking sound economic fundamentals and an even worse policy record. Policy-makers in developed and developing countries alike were strongly advised to stay away from any attempt to “pick winners”. The role of the State was to maintain sound macroeconomic balances, reduce market distortions, open up to international trade and capital flows, simplify red tape and let markets work their magic. Depending on initial conditions some of this was indeed needed, but it was always insufficient, in some cases quite inappropriate, and issues of timing, sequencing and coherence were often neglected.

Even those economists who were well tuned to the literature of market failure, and the concomitant case for state intervention, usually ended up rejecting industrial policies on the grounds that the likelihood of “government failure” was too high a price to pay for the possibility of correcting “market failure”. The extreme and simplistic view that the best governments can do is to “get out of the way” became respectable in influential policy circles. As a result, policy-makers in developing countries could benefit from a lot of training and sophisticated policy advice on macroeconomics and finance, but not on productive transformation, technological upgrading and skills development.

The voices of economists documenting and arguing that the history of the now developed countries, as well as the more recent success stories of rapid catching up in East Asia were no simple free market/free trade stories were always there, but on the fringe of economics. Those economists pointing to a developmental role for the State were treated at best with the condescension granted to those that have strayed away from the right path and the true wisdom, and at worst with outright hostility. Policy packages included as conditions for international financing or donor support often incorporated measures to dismantle what were regarded as too interventionist or distorting policies and institutional arrangements.

After the crisis policy mindsets are different. It is now a good time to revisit the industrial policy debate and to promote a more sophisticated understanding of the institutional, informational and political economy balances necessary for productive transformation policies to be successful.

This was recognized by the International Labour Conference in 2010. Its resolution on the Recurrent Discussion on Employment called upon the Office to strengthen its activities and capacities in the area of industrial and productive transformation policies.

One important challenge in the wider policy debate is to elaborate a conceptual framework for analysis of industrial policies in a dynamic development context. What economic theories do we have and which of them are more useful for policy-makers to approach the related challenges of catch-up growth, structural change, job creation and learning in developing countries? What are the driving forces in this process, and how can industrial policies shape and accelerate its dynamics?

This paper by Irmgard Nübler is part of a broader work programme around these issues and it prepares the ground for the elaboration of a dynamic conceptual framework. The paper reviews the historic and current literature on industrial policies and evaluates the different economic theories or frameworks for designing industrial and productive transformation policies with a view to promoting a dynamic and high-performing catching-up process.

The analysis suggests the need to frame industrial policies within a wider concept of productive transformation. Central to this is the objective of linking – in a virtuous circle –

structural changes in production and employment with the accumulation of domestic capabilities. This approach embeds industrial policies as an essential part of the development agenda. In terms of further research the paper points out two major gaps: the employment dimension needs to be made more explicit in the analysis of productive transformation policies; and a clearer framework of individual and collective capabilities needs to be developed.

We hope that by clarifying policy frameworks, this paper leads to more pragmatic and balanced policies and stimulates further research on a set of issues which are central for development, employment and living standards around the world.

José Manuel Salazar-Xirinachs
Executive Director
Employment Sector

Acknowledgements

The author would like to thank colleagues for discussions and comments from which the paper benefited greatly. In particular thanks are due to José Manuel Salazar-Xirinachs for his detailed and substantive comments on earlier draft versions, and for inspiring discussions. I am grateful to Uma Amara, Michael Axmann, Mario Berrios, Anna Biondi, Duncan Campbell, Christoph Ernst, Christoph Hartmann, Christine Hofmann, David Kucera, Sangheon Lee, Aurelio Parisotto, and Per Ronnas, for their valuable comments and discussions.

Responsibility for the views expressed and for errors or omissions remains with the author.

Contents

Preface	iii
Foreword	v
Acknowledgements	vii
I. Introduction.....	1
II. The industrial policy debate: Frameworks and policy principles.....	3
A. Growth perspective: “Getting the incentives right”	3
B. Institutional economics: “Getting the policy process right”	5
C. New evolutionary economics: “Getting the learning process right”	8
III. Lessons for industrial policies in a dynamic paradigm	13
A. Complexity and principles to design industrial policies	13
B. The role of the State: Facilitating productive transformation	14
C. Changing role for trade policies along the catching up trajectory	15
D. Vague concepts of individual and collective capabilities	18
E. The missing dimension: Productive employment and employment patterns.....	20
IV. Concluding remarks	22
References	25

I. Introduction⁵

One of the most interesting debates in development economics is how poor countries can trigger and sustain high performing growth and development dynamics. During the past decades, development policies were largely formulated in the “growth paradigm”.⁶ While economic growth constitutes an essential element of the development process, the more recent experience of many least developed countries demonstrates that growth is not enough. Many countries achieved growth in GDP by increasing commodity exports, but growth failed to translate into industrialization, more productive employment and poverty reduction. They got growth, but no development⁷.

The failure of quantitative growth to trigger economic and social development shifted attention to the quality of the growth process, to structural change and to catching up. This shift in focus was inspired by the development experience of East Asian countries. They were able to trigger a sustained, high-performing growth process, characterized by a rapid transformation of the production and export structure towards higher value added and technologically advanced goods and services.

Development economists are therefore searching for alternative frameworks, theories and tools which allow the analysis of the dynamics of economic change, structural transformation and the forces shaping the catching up dynamics of developing countries. Such a new “paradigm” is defined as a system of knowledge and interdependent theories which not only allows the framing of analysis of the catching up process, and to elaborate and evaluate policies, but also defines the direction, nature and boundaries of research.⁸

The rising interest in the new paradigm in development economics is reflected in the emerging debate on industrial policies which was inspired by the insight that industrial policies were widely used with success by the developmental states of East Asian countries “... to encourage exports, attract foreign direct investment (FDI), promote innovation, and favor some industries over others”.⁹ What stands out is the historically unprecedented high growth rates and rapid catching up achieved by the *best performing* countries in East Asia by rapidly absorbing know-how, technology and knowledge from the rest of the world, to assimilate it at a tremendous pace and to diversify into sophisticated and new products.¹⁰ As a consequence, more and more developing countries, in particular middle-income countries

⁵ This paper was prepared in the context of a research project on *Capabilities and Productive Transformation: Industrial, Education and Training Policies* implemented by the Employment Sector of the International Labour Organization, Geneva. It is based on a chapter in the forthcoming book on *Capabilities for Productive Transformation*, ILO, Employment Sector, Geneva.

⁶ Lucas (1988). Robert Lucas, a Nobel Prize laureate, stated: “By the problem of economic development I mean simply the problem of accounting for the observed pattern, across countries and across time, in levels and rates of growth of per capita income.”

⁷ ILO (2011).

⁸ Kuhn (1970).

⁹ Harrison and Rodriguez-Clare (2009).

¹⁰ Japan, South Korea and China were the growth champions during the three sub-periods 1950-1973, 1973-1990 and 1990-2005, respectively, with annual per-capita growth rates between 6 to 8 percent. These rates greatly exceed those experienced by the growth champions of earlier eras.

are formulating or have launched selective “New Industrial Policies”. Industrial policies are seen as a powerful instrument to support recovery following the economic crisis, to shift the economy to low-carbon and green technologies, and to follow the development example of very successful developing countries in rapid catching up.

What policy advice should be given to policy-makers who are motivated to push their country along a high-performing, sustained catching up and structural transformation trajectory? While some economists remain still skeptical about industrial policies, arguing that policies may be subject to failure, bureaucrats not being good at picking winners, and government interventions being prone to political capture, a newly emerging debate on industrial policies agrees that industrial policies and the State have a role to play in catching up, growth and development.¹¹ This debate has been joined by growth economists, institutional economists as well as evolutionary economists. Their common ground is that developing countries need to accelerate growth, trigger a sustainable, high-performing catching up process, and that industrial policies need to support this processes.

While a consensus is emerging in favour of industrial policies for catching up, the debate provides very different views on the nature and scope of industrial policies. Economists develop their arguments in different frameworks and paradigms, applying distinct concepts of catching up and development goals. Policy-makers need to understand these frameworks in order to select those tools for analysis, policy design and evaluation which are most appropriate in the light of the country’s level of development, and the country’s development goals and aspirations.

This paper is revisiting the current debate on industrial policies for catching up. The different perspectives are reflected in three major strands of publications which may be seen as part of different “development paradigms”. They apply distinct frameworks for policy analysis and, as a consequence, they derive different principles for the design of industrial policies. The growth perspective is discussed in the Report of the Commission on Growth and Development (RCGD) which was led by Michael Spence, Nobel Laureate in Economics, and Danny Leipziger, former Vice-President, World Bank.¹² The institutional economics approach is discussed in various publications by Rodrik, Hausmann, Klinger, and Hidalgo, among others.¹³ The third contribution provided by evolutionary economics is elaborated in the recent book by Cimoli, Dosi and Stiglitz (2009), and publications by Chang, Lall, and others.¹⁴

This paper firstly reviews the debate and the frameworks in terms of the concept of catching up, the policy issues raised, and the principles guiding the design of industrial policies. Table 1 of this paper provides an overview. Second, a comparative analysis draws lessons for the design of industrial policies for dynamic catching up and sustainable growth, and identifies knowledge gaps and research priorities. Finally, the paper provides conclusions.

¹¹ De Ferranti (2003), UNIDO (2005), UNIDO (2009), WTO (2006), UNCTAD (2007), Commission on Growth and Development (2008).

¹² Commission on Growth and Development (2008).

¹³ Rodrik (2007), Hausmann and Klinger (2006), Hidalgo et al. (2007, 2009).

¹⁴ Cimoli, Dosi and Stiglitz (2009), Chang (2009), Lall (2000).

II. The industrial policy debate: Frameworks and policy principles

A. Growth perspective: “Getting the incentives right”

Growth theory analyses catching up in the context of models which focus on the **productivity-enhancing role of technology and human capital**. The growth perspective suggests that developing countries need to accumulate knowledge and technologies, invest in human and new vintage physical capital, in infrastructure and institutions in order to increase total factor productivity, and to move along a sustained growth path.

Looking through the lenses of growth theory, catching up is defined in terms of productivity growth. The growth perspective suggests that developing countries achieve high returns to investment in human and physical capital and, as their productivity growth rates will exceed those of the leader countries, catching up is modelled as a process of converging growth rates.

As a consequence, the Report of the Commission on Growth and Development (RCGD)¹⁵ measures catching up in terms of productivity and the per capita growth rate. The gap between developing and industrialized countries is defined by “what growth rate a country would need to achieve to catch up with industrialized countries (whose per capita income is growing at the 2 per cent secular rate) by a certain date”. For example, they calculate that at current growth rates China will catch up with industrialized countries before 2050.

The RCGD reviewed the catching up experience of 13 developing countries¹⁶ and identified some of the most distinctive characteristics of high-growth economies that have been able to grow at more than 7 per cent for periods of more than 25 years since the Second World War. Based on this cross-country analysis, the Commission identified a list of key ingredients for high growth performance. In addition, the Report provides a list of what countries should avoid.

The Commission concludes that government policies need to provide the “right mix of ingredients” in order to create levels of incentives that are necessary for private investment to take off. The RCGD recognizes that countries differ, that no one-size-fits all, and that the combination of ingredients needs to be country-specific. The RCDG advised developing countries on “getting incentives right”, however, it refrains from providing a positive policy agenda. By referring to country-specific conditions and differences, the report argues that the impact on the economy of given policies will be difficult to predict and therefore the report cannot recommend policy packages.

The new growth perspective discussed in the RCGD recognizes the significance of social capabilities and institutions for catching up. Its framework, however, is not able to analyse “these institutions and capabilities” and therefore they are unable to provide policy advice on how to develop capabilities. The RCGD states:

¹⁵ Commission on Growth and Development (2008:113).

¹⁶ Botswana, Brazil, China, Hong Kong (China), Indonesia, Japan, the Republic of Korea, Malaysia, Malta, Oman, Singapore, Taiwan (China), and Thailand.

... economists have acquired a deeper appreciation of the underlying institutions that make mature markets work. These institutions define property rights, enforce contracts, convey information, and bridge informational gaps between buyers and sellers. **These institutions and capabilities**¹⁷ may not be fully formed in a developing economy. Indeed, the immaturity of these institutions is synonymous with underdevelopment. That makes it harder to predict how an economy will respond to, say, the removal of a tariff or the sale of a public asset.¹⁸

Growth models assume capabilities implicitly as “given” and to develop automatically. For example, by expecting “spillovers” of knowledge and technologies via trade and FDI to developing countries, these models assume equal capabilities across developing and industrialized countries to absorb technologies. Furthermore, at the individual level, human capital is modelled as the result of investment in education and training, assuming that the investment results in skills, competences and increased capabilities of workers.¹⁹ The models take it for granted that the investment activity will result in enhanced levels of human capital and higher productivity. The link between education and training on the one hand, and growth on the other hand, that is the learning process itself, is not modelled. Furthermore, Arrow (1962) introduced the concept of learning by doing and argued that learning takes place during the production process. Arrow assumed learning and increased productivity as a function of time spent on production. All these frameworks **assume** what in fact needs to be explained (the evolution of capabilities and learning) and they therefore fail to raise those policy issues related to the accumulation of capabilities and the complexity of learning.

This point has been made by Lall (2000) when he argued that many theories and models analysing technological and industrial development assume that learning appears as a form of scale economies over time: passive, automatic and predictable – often depending on the production volume. “As such, it raises no policy issues ...”. Aghion and Durlauf (2007) argue along similar lines, and conclude that the growth theories may be considered as good theories to the extent that “the predictions made can be validated or falsified by the available evidence”. However, the authors continue to argue that growth theories are weak “in their ability to deliver relevant policies across various types of countries”.²⁰

Industrial policies therefore play a limited role in the mainstream growth framework, and they are defined in a relatively narrow sense, aiming at promoting competition and exports, and relating to instruments such as tax breaks, direct subsidies, import tariff exemptions, cheap credit, and infrastructure. Competition policy is suggested to drive the productivity growth process because it speeds up the process of creative destruction. “Governments committed to growth must therefore liberalize product markets, allowing new, more productive firms to enter and obsolete firms to exit”.²¹ The Commission also suggests trade policies as an instrument to promote export performance and catching up. Export-led strategies should enable incremental productive employment, larger imports, and ultimately faster growth.²² While the RCGD recognizes the fact that many countries

¹⁷ Highlighted by the author.

¹⁸ Commission on Growth and Development (2008:29).

¹⁹ See Schultz (1962) and Becker (1975).

²⁰ Aghion and Durlauf (2007).

²¹ Commission on Growth and Development (2008:6).

²² Commission on Growth and Development (2008:52).

had applied a variety of policies to promote specific industries or sectors, it concludes that “Nonetheless, the significance of these policies is hard to prove.”²³

In conclusion, the RCGD analyses and measures catching up in terms of productivity growth rates, and identifies those ingredients that empirically demonstrated playing an important role in the rapid catching up countries. The major policy message is to get the right mix of ingredients, and to get the incentives right. However, the report failed to develop a policy agenda, basically showing the “what” but not the “how”. The main reason for this is that the complexity of the growth process discussed in the RCGD is not reflected in the growth models. A major weakness is that these models assume only one form of knowledge. Knowledge is considered as a public good and this assumption implies that knowledge and technologies can easily “spillover”. As a consequence, they fail to model the process of capability accumulation and learning. Hence, these theories face a major explanatory gap. The RCGD recognizes this weakness by concluding that economists still lack a good understanding on **how** education, vocational training, human capital and technological change are translated into high-performing growth and that “... we may have the **wrong model of growth**”.²⁴

B. Institutional economics: “Getting the policy process right”

The thrust of **institutional economics** in the catching up debate is on the **productivity-enhancing role of structural transformation**. Catching up is defined as a process of diversification into higher productivity and value added activities, and of enhancing the complexity of economic structures and sophistication of the production and export structure:

... high-growth countries are those that are able to undertake rapid structural transformation from low-productivity (“traditional”) to high-productivity (“modern”) activities. These modern activities are largely tradable products, and, within tradables, they are mostly industrial ones (although tradable services are clearly becoming important as well). In other words, poor countries become rich by producing what rich countries produce.²⁵

This view of catching up defines development in terms of structural change rather than aggregate growth. The approach is rooted in the development debate of the 1950s, 1960s and 1970s, which emphasized structural change and industrialization, and shifting labour from traditional (rural) to modern (urban) activities,²⁶ as central elements of the development process. And recent empirical findings from cross-country analysis demonstrate that countries, as they experience rising income levels, increase diversification into non-traditional economic activities, both within sectors and into new sectors.²⁷ Furthermore, the experience of East Asian countries showed that the majority of “sustained growth accelerations” occurred during rapid increases in a country’s share of manufactured goods in total exports, greatly increasing the premium on tradable manufacturing. Finally,

²³ Commission on Growth and Development (2008:48).

²⁴ Commission on Growth and Development (2008:37). Highlighted by the author.

²⁵ Rodrik (2009).

²⁶ Lewis (1954), Fei and Ranis (1964).

²⁷ Imbs and Wacziarg (2003: 64)

increasing levels of income are related to increasing numbers of new export products. In other words, diversification, rather than specialization, describes the dynamics of exports during the catching up phase.²⁸

A recent literature explores the link between diversification and growth. According to Rodrik, diversification and transformation of the production structures enhance growth by shifting resources from low to high productivity activities and sectors. Modern sectors, and in particular tradables, have higher levels of productivity and shifting labour and other resources from low to high productivity sectors will increase the overall productivity level in the economy. In other words, the economy grows even if there is no productivity growth within sectors. Transition into modern industrial activities is the engine of economic growth and catching up. “Anything that speeds up structural transformation in their direction will speed up the rate of economic growth.”²⁹

Rodrik concludes that comparative advantages cannot serve as the driving forces of economic development.³⁰ Rather, “The trick seems to be to acquire mastery over a broader range of activities, instead of concentrating on what one does best.”³¹

Catching up is measured by the degree of diversification and sophistication of the production and export structure in the economy. Hidalgo et al. (2007) and Hausmann and Klinger (2006) defined empirically a global product space and the relatedness and density of the different products within the product space. By analysing the export structure of a country against the global product space, they determine its relative complexity and sophistication. The gap in sophistication and complexity indicates the catching up potential of developing countries.

This literature further argues that the product space and the structure of goods produced also determine the capabilities a country has developed. The authors point out that each country, as a result of its past and current production structure, has built up specific capabilities – capabilities expressed in the nature and structure of production factors and infrastructure created during the production process. These country-specific capabilities, in turn, define the products or industries a country may easily develop in the future.³² The authors, however, fail to develop a conceptual framework which explains the nature and evolution of capabilities and how they shape future productive transformation and the pattern of diversification.

Industrial policies, defined as “... interventions that have differential effects on some economic activities over others ...” are discussed as a key policy area for catching up.³³ Policies and institutions need to provide incentives for “learning what new products can be produced profitably in an economy, and how” thereby enhancing complexity and sophistication of the economy. The process of searching for new products that could be

²⁸ Klinger and Lederman (2004), Rodrik (2006).

²⁹ Rodrik (2009).

³⁰ Ricardo (1817).

³¹ Rodrik (2007:103).

³² Hidalgo and Hausmann (2009).

³³ Hausmann, Rodrik and Sabel (2007).

profitably produced in the country, however, is subject to various market failures and externalities, such as information and coordination failures and costs imposed by weaknesses in legal and regulatory institutions may be high. In both cases, industrial activity and investment are underprovided in market equilibrium, and governments need to address these market, coordination and information failures in order to achieve an optimal level of investment into “self-discovery” of new products and industry.

While the growth perspective proposes export promotion as an important policy to promote growth, Rodrik argues that export *per se* is not the critical factor in bringing about structural transformation and growth, “...what matters for growth is their output of non-tradable tradable, which can expand without limit as long as domestic demand expands at the same time”.³⁴ Governments therefore may promote domestic as well as foreign demand in order to expand markets for the domestically produced tradables. He discusses industrial policies such as subsidies which directly support industrial production, targeted investments in infrastructure to reduce the costs of domestic inputs, as well as exchange rate policies to promote exports. Empirical studies have shown a positive effect on the development of tradable sectors of undervalued exchange rate, arguing that undervaluation, like a subsidy on those industries, facilitates their expansion.³⁵

The scope of industrial policies in this approach is wider than proposed in the growth perspective, because structural transformation introduces complexity in the productivity-enhancing process and therefore raises a broad range of policy issues. In addition, this literature recognizes the pervasiveness of market imperfections such as externalities, asymmetric and imperfect information, lumpy investments, and market power in the real economy to justify industrial policies interventions.

Although Rodrik emphasizes the role of learning (learning how to discover, learning how to identify opportunities and constraints, etc.) and the product space literature highlights the role of capabilities in defining the direction of diversification, they fail to address the process of learning and the link between structural transformation and accumulation of capabilities. Learning itself and the evolution of capabilities remain in a black box.

A major contribution by Rodrik to the debate on catching up and industrial policies was to shift focus on the policy process and methodologies that countries should follow in formulating and designing industrial policies and institutions. Policy-makers are advised to recognize the potential practical problems posed by the conduct of industrial policies and focus on the institutional and incentive design features required to solve them, and think about “how to do it”. He argues that “The right model for industrial policy is not that of an autonomous government applying Pigovian taxes or subsidies, but of strategic collaboration between the private sector and the government. The challenge is “**getting the policy process right**”³⁶ by adopting an experimental and creative approach to institutional reform,

³⁴ Rodrik (2009).

³⁵ Empirical evidence shows that all successful catching up countries have applied “explicit *industrial policies* in support of new economic activities (trade protection, subsidies, tax and credit incentives, special government attention); *undervalued currencies* to promote tradables; and a certain degree of *repression of finance*, to enable subsidized credit, development banking, and currency undervaluation” (Rodrik, 2009). What is distinctive about these policies is that they target specific firms or sectors, and therefore privilege some at the expense of others (Rodrik, 2009).

³⁶ Rodrik (2004).

through deliberation councils, supplier development forums, investment advisory councils, sectoral round-tables, or private-public venture funds. Rodrik argues that “the task of industrial policy is as much about eliciting information from the private sector on significant externalities and their remedies as it is about implementing appropriate policies”.

The process needs to provide both “carrots” and “sticks” in its efforts to spawn new industries and it needs to be protected against capture. Policies and institutions need to provide incentives to enterprises and workers to search for new activities, and to learn how to discover activities that are profitable given the local cost structure. However, while incentives (“carrots”) are important, institutions and policies also need to provide “sticks” in order to avoid rent-seeking behaviour and provide feedback to correct mistakes and minimize the costs of mistakes.³⁷ At the same time, industrial policies need to be protected against abuse and capture, and therefore be carried out in a transparent and accountable manner.

In conclusion, the driving force for catching up in the institutional economy approach is diversification of the production structure, shifting production from traditional to non-traditional products, in particular to tradables. Although this approach recognizes the importance of learning and capabilities, they are not integrated into the analytical framework and therefore, fail to raise policy issues. Hence, the role of industrial policies is largely to facilitate a “growth-enhancing structural transformation”. The challenge of governments is to get the policy process right, and of industrial policies and institutions to shape a process of discovery, collaboration, and of learning where the opportunities and binding constraints are.

C. New evolutionary economics: “Getting the learning process right”

The thrust in the evolutionary catching up framework is on the **accumulation of domestic capabilities**, mainly at the organizational and societal level. This is the message of the recent publication by Cimoli, Dosi and Nelson (2006), but also by Chang (2009), Nelson (2007) and others. Domestic enterprises and society need to learn to produce new goods, learn to develop new products, and to imitate both technologies and organizational practices:

For countries aiming to catch up, the basic challenge is to ... bringing in and learning to master ways of doing things that may have been used for some time in the advanced economies of the world. In most cases there are models in advanced countries that can serve as targets for emulation, and ... developing the new capability.³⁸

The focus of the evolutionary framework is on the development of domestic capabilities. Capabilities refer to “knowing how to do”, they are acquired through experience, and they are different from codified, public knowledge. Capabilities therefore cannot simply “spillover”, but they need to be accumulated through experience. While it is important to learn from advanced countries, catching up countries can also learn significantly from peers in their efforts to accumulate capabilities in the context of South-South cooperation.

³⁷ Rodrik (2007).

³⁸ Nelson (2008).

Evolutionary economics introduced the concept of collective capabilities. They exist at the level of organizations and societies, and are embodied in networks, institutions, and routines. Learning therefore relates not only to the development of competences of individual workers, but also to the accumulation of technological and organizational capabilities in domestic firms, in R&D and training institutes as well as to the capability of governments to follow good governance rules and the development of social institutions.

These “collective” capabilities at the organizational, sectoral and societal level are considered highly important in a catching up process because only they are considered to have the power to create *dynamic* development processes like they were observed in successful Asian countries such as Japan and the Republic of Korea. Dynamics cannot be achieved by the isolated activities of individuals:

... because much of the knowledge in productive enterprises is acquired in a “collective” manner in the sense that they are created in the context of a complex division of labour (rather than through the activities of isolated individuals) and deposited in the form of organizational routines and institutional memories (rather than in individuals), when the individuals are organized into productive enterprises, productivity growth stops being dependent on individuals and therefore acquires a self-sustaining dynamic that individual entrepreneurship cannot produce.³⁹

The new evolutionary growth theory therefore “... sees economic growth as the result of the co-evolution of technologies, firm and industry structures, and supporting and governing institutions. I propose that a satisfactory theory of the processes involved in economic growth must consider all three of these aspects, and that the driving dynamics involves their interaction”.⁴⁰

Industrial policies and the State play a key role in the evolutionary catching up framework. The evolution of capabilities is viewed as a complex, incremental, non-linear, and path-dependent process, and a process of “experience accumulation” by the labour force, domestic enterprises, schools, universities and R&D systems accumulate experience.⁴¹ The role of the developmental state is facilitating, shaping and accelerating the direction and thrust of learning and accumulation of capabilities. Learning is viewed as the essence of development, and the major rationale for industrial policies is to facilitate and shape the learning process for a rapid accumulation of domestic capabilities. From an evolutionary perspective, the main challenge and principle for catching up therefore may be seen in **getting the learning process right**. Policy-makers are challenged with a wide variety of tasks, and the simultaneous achievement of objectives. This requires the development of a comprehensive “learning strategy”⁴² and a “knowledge-centered development agenda”⁴³ that supports the “micro learning dynamics, economy-wide accumulation of technological capabilities, and industrial development”.⁴⁴

³⁹ Chang (2009:8).

⁴⁰ Nelson (2007:13).

⁴¹ Cimoli, Dosi and Stiglitz (2009:546).

⁴² Salazar-Xirinachs and Nübler (2010).

⁴³ Cimoli, Dosi and Stiglitz (2009:541).

⁴⁴ Cimoli, Dosi and Stiglitz (2009:543).

Evolutionary economics suggests various principles or procedures that policies and institutions should follow in designing and implementing such a learning strategy. First, governments need to create opportunities for learning in new industries and in advanced techno-economic paradigms. Cimoli, Dosi, and Stiglitz (2009) highlight the role of the State in shaping good learning paths because “... future capabilities build upon, refine and modify incumbent ones: hence the policy goal of building good path-dependencies”.⁴⁵ The challenge of governments therefore is to shape the trajectory of structural change and productive transformation and target those sectors which create wide learning opportunities. Reinert argues that all high-performing, sustained-growth economies have found a way to deliberately shift their position in the hierarchy of productive structures away from “low quality activities” (diminishing returns, flat learning, low productivity, low wages, etc.) and into “high quality activities” characterized by economies of scale, steep learning curves, synergies, rapid technological progress, and “productivity explosions”.

Second, institutions and policies need to combine incentives to invest in learning with compulsion and pressure to learn and to avoid rent-seeking. Learning is a complex, uncertain and risky process and enterprises and individuals need to be able to safeguard returns in order to recover their investment in learning. Hence, policies and institutions need to create learning rents. Infant industry protection is discussed as a major approach to create learning rents.⁴⁶

Experience from many countries shows that institutions also need to provide “sticks” in order to avoid rent-seeking and to enforce learning. These include, for example, the application and monitoring of strict standards, automatic sunset clauses, and time-bound incentives. Possas and Borges (2009) discuss competition policy in terms of “a permanent Schumpeterian stick discouraging sheer rent-seeking behaviors”. Evolutionary economics argues that Import Substitution Strategies in Latin America prior to the 1980s have largely failed because policies and institutions provided only weak enforce mechanisms which resulted in flat learning curves, inefficiencies and rent-seeking behavior.

Third, developing countries can learn from the catching up experience of other countries, however, countries differ substantially in their conditions and their domestic capabilities. These domestic realities need to be taken into account in the policy lessons to be learnt. Chang concludes that “Exactly what policy implications we draw from which historical cases will depend on the exact natural, economic, social, political, and cultural conditions that a country faces and on what their goals, preferences, and aspirations are.”⁴⁷

Fourth, comparative advantages are not given, and policies play a central role in creating new comparative advantages for a rapid and dynamic catching up process. This suggests that countries need to emulate into advanced techno-economic paradigms and create new comparative advantages rather than specializing in existing comparative advantages. Reinert argues that only when a “catching up” country has entered the leading technological paradigm will it be in its interest to specialize according to its comparative advantage within that paradigm.

Protective trade policies play a particular important role in the evolutionary policy package in creating dynamic gains from trade and new comparative advantages by

⁴⁵ Chang (2009:2).

⁴⁶ Khan and Blankenburg (2009).

⁴⁷ Chang (2009).

promoting organizational learning, and the accumulation of social capabilities (“learning societies”).⁴⁸ The design of trade policies needs to provide learning opportunities in new industries, provide incentives and rents to invest in learning, and exert pressure to learn and avoid rent-seeking behavior. Trade protection through tariffs has been suggested to nourish learning-intensive and technology-intensive industries and, in this sense, trade policies are viewed as an important element of a learning strategy. And if protection is temporary and is designed to phase out, it also puts pressure on enterprises to adopt new technologies, allow their workers to gain experience and to become competitive in international markets. Reinert (2009) suggest a pattern of optimal tariffs in the course of industrial development in order to successfully build capabilities as the economy moves along the technological trajectory to more advanced sectors.

Finally, the developmental state should not only be concerned with attracting FDI, but, equally important, with the development of domestic enterprises and entrepreneurship. Based on her research in Asia, Amsden concludes that foreign and local firms make distinct contributions to economic development. Ownership matters because it shapes the dynamics of the transformation and learning process. Local enterprises are more risk-taking and entrepreneurial, they invest more in R&D and in more sophisticated research. Local entrepreneurship plays an important role in a catching up context in creating local industries, developing skills, improving on foreign technologies and undertaking scarcity-induced innovations.⁴⁹

To conclude, the evolutionary approach focuses explicitly on the co-evolutionary processes of capabilities accumulation and productive transformation. The dynamic is not “convergence” towards a productivity growth rate, but one of emulation into leading techno-economic paradigms, linked through feedback mechanisms which create circular causation and cumulative and sustainable development processes. These processes are complex, path-dependent, gradual and co-evolutionary. The complexity of this process raises a wide range of policy issues and, therefore, industrial policies and the developmental State play a critical role. They face the challenge of shaping the productive transformation process for high learning opportunities, and foster institutions which create both incentives and pressures to learn, and to formulate policies for the rapid accumulation of domestic capabilities. The design and implementation of policies and of “engineering” institutions in this process represents a formidable task, and it draws attention to the capabilities of governments to design, formulate, implement and assess national learning strategies. The critical question in this context is how to build up capabilities of governments during the transformation process to guide and shape productive transformation, diversification or emulation. This is at the core of an effective “developmental state”.⁵⁰

Finally, despite the centrality of capabilities in the evolutionary development model, it does not provide a conceptual framework of capabilities. In order to make the concept operational for industrial policies, and to develop a positive policy agenda for productive transformation and capability development, we need to understand the dimensions of capabilities and their building blocks, and the forces shaping the evolutionary process of productive transformation and building capabilities. Elaborating the concept of capabilities in a dynamic context represents an important area for future research.

⁴⁸ Lall and Teubal (1998), Teubal (2008).

⁴⁹ Amsden (2009), Hobday and Perini (2009).

⁵⁰ Salazar-Xirinachs and Nübler (2010).

Table 1: Distinct frameworks for industrial policy and catching up

	<i>New growth perspective</i>	<i>Institutional economics</i>	<i>Evolutionary theories</i>
Analysis			
<i>Unit of catching up</i>	Productivity growth	Sophistication of production structure	Domestic capabilities
<i>Catching up dynamics</i>	Accumulation of new vintage capital (technology) and human capital (education and skills)	Diversification into non-traditional tradables	Co-evolution of structural changes and accumulation of capabilities
<i>Driver of productive change</i>	From low to high productivity technologies Change in endowment and “ingredients” structure	From low to high productivity industries Change in production and export structure	From low to high “quality” activities Change in techno-economic paradigms and capabilities
<i>Concept of capabilities</i>	None – Implicitly assumed to exist	Capabilities are embodied in the nature, quality and specificity of production factors (physical and human capital), physical infrastructure, and institutions	Collective capabilities are embodied in routines of enterprises, social institutions and networks Capabilities co-evolve with productive transformation
<i>Measurement of catching up</i>	Productivity growth rate	Increasing share of non-traditional tradables in production and export	Expansion of learning networks; “smarter” routines in enterprises and social institutions enhancing dynamics
Policies			
<i>Principle guiding industrial policies</i>	Getting incentives right in order to get the right mix of ingredients Policies to enhance: - private investment in physical, human capital, new knowledge - competition – market entry and exit - trade, export and FDI – knowledge spillovers	Getting policy process right - establish collaboration between public and private sector to overcome information and coordination failures - develop institutions to support investment in self-discovery and diffusion of new activities in markets - pragmatic approach to identify binding constraints - apply “carrots” and “sticks” - promote transparent government procedures, accountability	Getting learning process right Developmental state to - deliberately search and emulate along “good” paths of structural transformation - promote high-quality activities for rapid learning, synergies, increasing returns, and productivity explosions - combine incentives, compulsion, opportunities for learning - promote networks and institutional framework to facilitate creation and exchange of knowledge and capabilities
<i>Role of trade policy</i>	High Promote efficiency gains from trade: - Competition policy to enhance productivity - Liberalize trade to promote knowledge spillovers - Promote exports to expand markets	Ambivalent Trade policies to expand markets and demand for locally produced tradables	High Promote dynamic gains from trade: - Accumulation of capabilities - Create new comparative advantages - Promote export in higher quality goods
<i>Scope for industrial policy</i>	Limited	Wider	Widest

III. Lessons for industrial policies in a dynamic paradigm

A. Complexity and principles to design industrial policies

The different analytical frameworks provide distinct principles and rationales for industrial policies. As table 1 shows, the relevance and scope of industrial policies is determined by the concept of catching up, and the complexity of the process modelled in these different frameworks. The challenge and scope of industrial policies widen as the catching up models shift focus to the dynamics of the growth process, and as they recognize pervasive information and coordination failures of markets. Increased complexity therefore also draws attention to the important role of institutions in coordinating activities and of institutional “engineering”. As a consequence, the policy principles provided by the RCGD highlights incentives and ingredients while institutional and evolutionary economics focus on processes (“getting the process right”). Furthermore, the RCGD recognizes weak institutions as a synonym to underdevelopment, but is unable to provide tools to analyse institutions. In contrast, the institutional and evolutionary frameworks view the evolution of institutions and of institutional capabilities as part of the catching up process.

The growth perspective is preoccupied with the rise of per-capita productivity and technological knowledge. Productivity increases as advanced knowledge is embodied in human and physical capital and in infrastructure. These approaches remain at a low level of complexity as they neither model the learning process nor the process of productive transformation. They assume that learning appears as a form of scale economies over time and that absorptive capabilities and capacities are given. Although the RCGD has recognized low capabilities in developing countries, it could not suggest policies that could help to develop capabilities. And to the extent that the framework applies to one-sector models they lack the tools to explain structural transformation. Complexity of the catching up model is low and therefore raises few policy issues. Policy-makers are advised to follow the principle of “getting the incentives right”, and to get the right mix of ingredients. The role for industrial policies is limited, basically relating to instruments such as tax breaks, direct subsidies, import tariff exemptions, cheap credit, and infrastructure.

Institutional economics highlights the relevance of industrial policies for promoting transformation into non-traditional tradables and higher productivity goods, services and sectors. This approach introduces a higher level of complexity because it describes catching up as a process of structural transformation and diversification in the context of pervasive market imperfections such as externalities, asymmetric and imperfect information, lumpy investments, and market power. Policymakers are advised to get the transformation and policy process right, that is, ensure that diversification takes place, and that the transformation process follows the right direction and increases productivity growth in the economy. The scope for industrial policies includes all policies that stimulate specific economic activities, take advantage of opportunities, and overcome market and coordination failure, constraints and bottlenecks to growth.

Governments need to design institutions which facilitate public and private collaboration, provide incentives to entrepreneurs to search for new products and at the same time promote imitation and diffusion of the new activities in the economy so that new industries develop in the economy. Governments are advised to apply policies that promote specific industries, to undertake “growth diagnostics” that identify binding constraints in the growth process, and to develop policy design and implementation procedures that are accountable and transferable.

Institutional economics recognizes the importance of learning and the development of capabilities in the catching up process. Capabilities relate to “... acquire mastery over a

broad range of activities”, “learning to search and discover” or “learning where the opportunities and constraints are”, and they are defined in terms of the specificity of production factors, of physical infrastructure and institutions. The development of capabilities however, is not addressed explicitly. They are assumed to emerge as a “by-product” of the transformation process.

Evolutionary economics places the accumulation of domestic capabilities centre stage, in particular of collective capabilities that exist at the levels of enterprises, industries, and societies. Catching up therefore is defined in terms of domestic capabilities. Through the lenses of evolutionary economics, the processes of learning and accumulation of local capabilities are seen as the essence of development and catching up.

The evolutionary perspective introduces high complexity by linking productive transformation and accumulation of capabilities, and presenting them as co-evolutionary, non-linear, circular causation and path-dependent processes. Capabilities are developed through experience. Technological, organizational and institutional capabilities evolve in a gradual process of learning-by-doing in the production process. This challenges industrial policies with accelerating and shaping the productive transformation process with the aim of creating learning opportunities for workers, firms and industries in advanced techno-economic paradigms and steep learning trajectories.

Policy-makers are advised to get the learning process right, and design development strategies as learning strategies. This implies shifting economic activities from low- to high- quality sectors, creating synergies and learning networks, and promoting emulation into the leading techno-economic paradigm. Industrial policies are therefore broadly defined, including all policy areas that can support the complex process of productive transformation as well as building domestic capabilities. This includes education, training, R&D, and technology policies, policies to attract domestic and foreign investment, trade policies to protect and nurture infant industries, as well as the “engineering” of institutions.

B. The role of the State: Facilitating productive transformation

The “new” approaches to industrial policies are not about “picking the winner and loser” but about the facilitation of processes of productive transformation and accumulation of domestic capabilities. The challenge is to design policies and institutions which provide incentives to search for profitable activities, to invest in new technological and commercial knowledge, to shift into higher productivity and learning-intensive activities, and to support the learning process. Productive transformation embraces the whole economy and relates to structural changes between the agricultural, industry and service sectors, to diversification into new activities within the different sectors and to the adoption of advanced technologies and new production processes in existing activities, industries and sectors. Governments therefore need to make policy choices that drive the transformation of the system along a sustainable growth and development path, and, in the words of Ocampo (2005), that support the “ability of an economy to constantly generate new dynamic activities”.

Furthermore, although the RCGD takes a more limited view on policy-making, all three strands of literature discussed in this paper agree that policy-making needs to take into account domestic realities and be country-specific. There is no “one-size-fits-all”, and no catalogue of best practice. Every country needs to design policies according to its own history, interests, and aspiration, taking into account limited fiscal space, government and institutional capabilities.

Both, institutional economics and evolutionary economics discuss the importance of designing institutions that trigger and sustain rapid catching up while avoiding or minimizing political capture and rent-seeking behaviour. Governments in developing

countries need to build up their own capabilities in a process of learning by doing, taking a search and experimental approach, learning from the experience of peers and successful catching up countries. In this context, they need to develop good governance procedures in which accountability to the public and transparency are key features. Policy design and implementation procedures need to be combined with effective feedback mechanisms in order to rapidly identify mistakes, adopt policies and consequently to keep the costs of mistakes low.

Furthermore, policy-makers need to design industrial policies that combine incentives (“carrots”) with compulsion (“sticks”). Institutions and policies need to provide incentives to domestic and foreign firms to invest in the search for and diversification into new products and industries and to invest in learning. Individuals and firms are motivated to invest if they are able to collect returns (or rents) and to recover the costs of their investment. For example, employers are motivated to invest in the search for new profitable products if institutions allow these firms to collect “first mover rents”. However, when competing firms rapidly imitate, those firms investing in the search process may not be able to recover the search costs. Hence, policies such as subsidies, tax exemptions or exchange rate policies and other protective trade measures and institutional arrangements need to ensure, firstly, that rents are created so that firms have incentives to invest in “self-discovery” of new products, new technologies, or training, and secondly, that the “first mover” can collect enough rents to fully recover investment costs. But incentives are not enough and disciplinary measures are also important as they create a compulsion to learn and improve productivity. In other words, these measures and institutions need to limit rent-seeking. These include the application and monitoring of strict standards, automatic sunset clauses, or time-limited incentives. Also competition policy has been discussed as an instrument to enforce the learning process and avoid inefficiencies.

C. Changing role for trade policies along the catching up trajectory

The relevance of trade policies for industrial development seems to be under particular dispute within these various frameworks. This is not new; List stated 170 years ago that “No branch of political economy presents a greater diversity of views between men of theory and men of practice, than that which treats international commerce [trade] and commercial [trade] policy. There is, however, in the domain of this science no topic, which, in regard to the well-being ... of nations ... presents the same degree of importance.”⁵¹ While the classical economists Adam Smith and David Ricardo supported free trade and specialization according to comparative advantages, Friedrich List (German historical school) and John Stuart Mill (arguing in the classical paradigm), view trade protection as an instrument to provide opportunities to accumulate individual skills and social capabilities for catching up and development. This dynamic argument was developed further by the evolutionary approach, elaborating a key role for protective trade policies in promoting the accumulation of capabilities and new comparative advantages.

Growth and trade theories emphasize the role of free trade and competition. By assuming knowledge spillover from trade and FDI, they implicitly model technological learning as a function of the trade volume. In order to speed up the catching up process, the growth framework suggests liberalizing trade, reducing barriers to entry and promoting exports. The institutional frameworks question this logic. Rodrik basically argues that

⁵¹ List (1856).

learning takes place in the production process, and that there is not much empirical evidence for knowledge spillovers through trade. Countries have to learn to produce tradables locally, and governments can support this process by helping to create sufficient demand for these locally produced goods, either in foreign or domestic markets.

These different views on trade policies can be reconciled. Trade policies play a different role in the distinct phases of the catching up process. There seems to be a consensus that specialization on the basis of comparative advantages is necessary at the beginning of the catching up process. Least developed countries with a large share of the population without schooling or some primary education and natural resources have comparative advantages in labour-intensive, resource-based and low technology goods. Trade models argue that countries increase efficiency and growth by exploiting these advantages and promoting export of such goods. The RCGD states: “A flourishing export sector is a critical ingredient of high growth, **especially in the early stages**”⁵². If an economy is failing to diversify its exports and failing to generate productive jobs in new industries, governments do look for ways to try to jump-start the process, and they should.”⁵³

When the economy enters the phase of rapid catching up, there is a need for continuous upgrading of the industrial structure in accordance with dynamic comparative advantage (Gomery and Baumol, 2000). The notion of dynamic comparative advantages reflects the idea that comparative advantages are “made not given”, and they are not created through the operation of market forces alone, but “through Government action and the deliberate choice to develop comparative advantage”.⁵⁴ Static comparative advantages cannot create dynamic learning effects.

Economic frameworks therefore need to explain the dynamics of creating new comparative advantages, and policies need to be concerned with accelerating the dynamics rather than with the exploitation of existing advantages. Countries aiming at rapid catching up need to develop institutions and policies to facilitate and shape the accumulation of new capabilities, by diversifying into new goods and sectors and learning-intensive activities. If a country continues producing and exporting labour-intensive and resource-based industries, industrialization and development will not be met in the long-run.⁵⁵

The rationale for protective trade policies is provided by Chang, Reinert and other evolutionary economists⁵⁶ who argue that new comparative advantages are developed through experience in advanced industries and that protective trade policies therefore need to create learning opportunities by promoting and nurturing infant industries in advanced techno-economic paradigms. Chang finds that eighteenth century Britain, nineteenth century United States, Germany, and Sweden, and twentieth century Japan, Republic of Korea, and Taiwan (China), all had used protection, subsidies, and other means of market-defying government intervention to build up industries and, as a result, capabilities and dynamic comparative advantages. It is therefore important to understand that “...

⁵² Highlighted by the author.

⁵³ Commission on Growth and Development (2008).

⁵⁴ Cline (1983: 155-56).

⁵⁵ Shafaeddin (2006).

⁵⁶ Cimoli, Dosi and Stiglitz (2009:546).

development is achieved by upgrading a country's productive capabilities and moving into more 'difficult' industries *before* they acquire comparative advantages in those new activities".⁵⁷

Trade policies as part of a learning strategy need to create learning opportunities, incentives and pressure to learn, and mobilize forces such as novelty, scale, diversity and synergy which are catalysts of learning processes. Trade protection needs to be temporary in order to enforce learning, and trade liberalization be gradual and sequenced to provide space for industrialization, time to accumulate domestic capabilities, create new comparative advantages and become competitive in international markets.

Finally, Reinert argues that only when a "catching up" phase is coming to an end, and the country has entered the leading technological paradigm, will it be in its interest to specialize according to its comparative advantage *within* that paradigm.⁵⁸ In other words, as economies close the gap to advanced countries and approach the leading edge of technologies, they have gained comparative advantages in high technology products. In this situation, the challenge of countries is to increase efficiency by specializing production and export in these highly productive sectors, liberalizing trade and promoting exports.

Countries aiming at promoting rapid catching up are advised to exploit efficiency gains and take advantage of comparative advantages within their techno-economic paradigms. However, they also need to apply protective trade policies during the dynamic phase of catching up to trigger and support the creation of new comparative advantages. Evidence from the successful and rapid catching up countries in Asia shows that they have applied a distinct combination of trade policies along their development path. In particular, at the beginning of the catching up process, they had applied a two-pronged trade strategy, promoting export in labour-intensive goods in which they had comparative advantages, but simultaneously applying industrial policies and import protection, to build up new and high learning industries or imitating frontier technologies. As these countries are approaching the high end of technologies, they liberalize trade, and shift industrial policies from sectoral trade protection to horizontal industrial policies such as technology and skills development policies. This strategy has been followed for example by the Republic of Korea and China.

Hence, trade policies are central elements of catching-up strategies. However, the design of trade policies for industrial development and catching up depend on the level of development, the size of the market, the goals and aspirations of countries as well as on the opportunities and space provided by the global economic and institutional environment. Timing and sequencing of trade policies are therefore key and gradual liberalization to moderate levels of protection provide the space and time for industrialization and accumulation of domestic capabilities in technological dynamic sectors. Further research is required to analyse the role of trade policies in triggering and fueling the dynamics of capability accumulation and, in particular, in promoting the development of technological, organizational and institutional capabilities.

Finally, trade protection has been traditionally applied as an instrument to promote industrial development and the accumulation of capabilities in particular in countries with limited government and institutional capabilities and fiscal space. This suggests that international initiatives such as the Aid for Trade initiative could also play an important

⁵⁷ Chang (2002).

⁵⁸ Reinert (2009:86)

role in supporting learning processes, and promoting the development of trade related capabilities.

D. Vague concepts of individual and collective capabilities

While the different concepts of catching up agree that technological knowledge represents a major driver of growth, these frameworks differ in their approaches to capabilities and the learning process. The growth perspective and institutional economics mainly focus on capabilities at the individual level and on education and training for individual competences, while evolutionary economics highlights collective capabilities and the role of policies and institutional “engineering” to promote capabilities at the level of enterprises, organizations, and societies.

Growth theories focus mainly on individual capabilities created through education, training and experience. Individual competences are assumed to develop through investment in human capital or learning-by-doing at the workplace. The challenge of policies within this framework is to get the incentives right so that individuals and firms undertake optimal levels of investment in education and training. In a catching up process, adoption of more skills-intensive technologies increases demand for skilled workers. Education and training policies are therefore advised to provide incentives for optimal investment in required skills, to support the development of demand-led training systems and to ensure high mobility in labour markets for efficient allocation of labour and skills. However, the human capital and labour market models which are applied for policy design fail to explain the learning process and the link between investment in education and training on the one hand, and growth on the other hand.

The institutional approach has contributed to the capability debate mainly by highlighting the role of institutions in overcoming information, coordination and market failures for an optimal level of investment in education and training. According to this approach, institutions need to provide incentives to firms to invest in general skills training because firms risk losing their investment when trained workers behave in an opportunistic manner. For example, institutions which effectively reduce mobility of trained workers motivate firms to invest in general skills training. Furthermore, uncertainty on future skills needs results in sub-optimal occupational and training choices, and institutions providing information on skills and training requirements help to achieve efficient allocation of resources in labour markets. Institutions therefore reduce information and coordination costs in the market, they foster incentives to invest in education and training, and they promote investment in human capital as well as in growth.⁵⁹

In contrast, evolutionary economics highlights collective capabilities at the level of organizations and societies. The focus of analysis is on the dynamics of productive transformation and the technological, organizational and institutional capabilities which are considered as the drivers of highly dynamic processes. Collective capabilities of enterprises

⁵⁹ Rapid technological change in advanced economies introduces high uncertainties over future skills needs and institutions are designed for early identification, forecasting and anticipation of skills needs. In developing countries aiming at catching up and imitating technologies and products (that is, what advanced countries are already doing), the issue is not so much uncertainty over skills requirements, but the capacities of training providers to supply relevant skills and competences in a timely manner.

are embodied in routines which evolve in a process of experience, and these routines determine productivity and competitiveness of a firm. At the social level, institutions are viewed as the storage and memory of social capabilities, and institutional change is therefore an integral part of the capability accumulation and catching-up process in developing countries. Collective capabilities are created in a process of learning and industrial policies need to facilitate and shape this development process.⁶⁰ While knowledge and technologies can be acquired from the public domain, capabilities cannot – they can only be developed in the catching up and development process.

The new growth perspective also recognizes the importance of institutions and capabilities. The RCGD relates to social capabilities and views them as “institutions that define property rights, enforce contracts, convey prices, and bridge informational gaps between buyers and sellers”. The report argues that these “institutionalized capabilities” are not fully developed in developing countries, that this deficit prevents markets from functioning, and therefore, policy recommendations cannot be provided.⁶¹ Because its analytical framework has not integrated institutions and capabilities, institutional development is not modeled as part of the development process. The RCGD has recognized this weakness in the analytical framework. It states that, while education, human capital and technology have been identified as important ingredients to the growth process, the link between these ingredients and productivity growth is not well understood. The Report has recommended analysing the link between these ingredients and growth as a high priority for policy research.⁶²

Also, the literature on option space and structural transformation recognizes the relevance of capabilities at the level of the economy. Capabilities in this approach are defined in terms of the quality and specificity of production factors, physical infrastructure and institutions.⁶³ This approach argues that specificity of production factors emerge in the production process, however, the accumulation of capabilities is not explicitly addressed as a target of industrial policies. In addition, the literature claims that country-specific capabilities define the direction of diversification and structural transformation, however, it does not explain **how**.

Despite the centrality of capabilities, evolutionary economics has not yet developed a concept of capabilities. It does not explain the dimensions of capabilities, their properties and building blocks. Capabilities are defined by their functions such as to “learn how to implement and eventually how to generate new ways of producing new products” or they “have to do with the problem-solving knowledge embodied in organizations”.⁶⁴ Lall defines technological capabilities at the enterprise level as the “ability to use existing technologies efficiently ...”,⁶⁵ and distinguishes between investment, production and linkage

⁶⁰ Chang (2009).

⁶¹ Commission on Growth and Development (2008:4-5).

⁶² Commission on Growth and Development (2008).

⁶³ Lin (2011).

⁶⁴ Cimoli, Dosi and Stiglitz (2009).

⁶⁵ Lall (2000).

capabilities.⁶⁶ Chang argues that collective capabilities are reflected in the interaction and coordination of knowledge within enterprises and the economy.

The debate on capabilities for catching up is not new. Veblen (1915) and Gerschenkron (1962)⁶⁷ introduced the idea of catching up, arguing that poor countries can benefit from “backwardness” as they can rapidly develop through imitation and borrowing technologies from advanced countries. Both authors, however, could not explain the difference of countries in catching up performance. Abramovitz (1986) expanded this concept and argued that those countries experienced rapid catching up which were “backward” but had developed “social capabilities”. However, he also failed to develop a concept and argues that “The trouble with absorbing social capability into the catch-up hypothesis is that no one knows just what it means or how to measure it”.⁶⁸ And finally, Dosi, Nelson, and Winter (2000)⁶⁹ claim that “The term ‘capabilities’ floats like an iceberg in a foggy Arctic sea, one iceberg among many, not easily recognized, as different from several icebergs nearby.”

To conclude, despite the role that individual human capital plays in growth theories, and collective capabilities play in the institutional and evolutionary framework, neither of these different approaches has developed a conceptual framework of capabilities. The concept of capabilities remains vague and implicit. This represents a major weakness in defining a positive policy agenda for industrial development policies and catching up. Capabilities are country-specific as they are shaped by a country’s historical experience and development and, therefore, policy-makers need to understand these realities when designing, implementing and evaluating policies for rapid catching up.

A conceptual framework of capabilities and a deeper understanding of the nature and building blocks of capabilities is needed for policy-makers to design industrial policies for the development of capabilities. The ILO is currently implementing a research project in this area to elaborate a conceptual framework of capabilities in a dynamic context.

E. The missing dimension: Productive employment and employment patterns

Employment issues are largely absent from the debate on industrial policies, and neither of the discussed frameworks elaborate the role of employment in the catching up dynamics. There is agreement that productive employment represents a fundamental development goal, and that it is central for poverty reduction and pro-poor growth, better working conditions and decent work. Productive employment is by far the most important link between growth and poverty reduction. Full employment and efficient use of labour service and of human capital enhance economic growth, and on the demand side, rising

⁶⁶ Lall (1992).

⁶⁷ Veblen (1915) ; Gerschenkron (1962:388); Veblen has introduced the evolutionary perspective into the institutionalist approach to economic analysis. Gerschenkron was trained in the Austrian school of economics.

⁶⁸ Abramovitz (1986:388)

⁶⁹ Dosi, Nelson and Winter (2000:3)

income and wages increase demand for locally produced goods and services and stimulate growth.

By promoting productive employment and elimination of the working poor as part of the catching-up process, productive transformation becomes a vehicle for poverty reduction and economic and societal goals. The RCGD relates to employment issues by discussing the relevance of workers' mobility in labour markets for growth and employment: "In any period of fast growth, capital, and especially, labor moves rapidly from sector to sector, industry to industry. This mobility of resources was a feature of all the 13 high-growth cases"; it concludes that "Getting the labor market right is vital to ... growth."⁷⁰ The Report also recognizes the role of labour market institutions in creating decent work:

Some rules and institutions exist to safeguard the rights of labor, defending workers against exploitation, abuse, underage employment, and unsafe working conditions. In some countries, these rights are protected by unions or government regulations. But in others, no such protections are in place. The Commission feels strongly that these rights should not be sacrificed to achieve other economic objectives, including growth.⁷¹

This statement implies a trade-off between decent work on the one hand, and growth and "other economic objectives" on the other hand. The RCGD does not provide evidence for this implicit argument. In addition, this view is questioned in the context of dynamic models of learning and catching up.

The institutional framework argues that overall productivity increases as labour and other resources are shifted from low to high productivity sectors. Hence, this approach implicitly assumes that the higher productivity industries absorb a significant share of labour. Evidence from the recent growth experience in African countries shows that growth in most countries was mainly driven by the expansion of resource-based industries which tend to be highly productive, and increasing overall productivity, but they failed to create significant employment. Such a growth process does not translate into development. This raises the question, which sectors and industries should be targeted so that the twin goals of increased productivity and productive employment are achieved?

Also, the evolutionary approach remains relatively silent on the role of employment and of changing employment patterns in the transformation and learning process, and the role of employment policies for productive transformation and rapid catching up.⁷²

The employment issue, however, is highly relevant in a dynamic catching-up context. In the following, some important aspects will be discussed. First, employment is a necessary condition for translating structural change and diversification into capabilities. The reason is that capabilities are mainly developed through experience, and workers acquire competences in industries by using technologies and working in new techno-economic paradigms. In other words, while diversification into new industries provides opportunities to learn new competences, only those workers that are integrated in the production process can acquire the capabilities of advanced techno-economic paradigms. Employment therefore is considered instrumental in creating and shaping capabilities as the employment structure shapes the structure of competences and skills accumulated in the

⁷⁰ Commission on Growth and Development (2008: 25).

⁷¹ Commission on Growth and Development (2008:45).

⁷² Salazar-Xirinachs and Nübler (2010).

labour force, and these new capabilities define the scope and direction for future diversification and catching up.⁷³ In this sense, policies to establish employment opportunities in high-quality and learning-intensive activities are a central element in productive transformation strategies.

There are indications from rapid catching up countries which support this dynamic view of employment. Many countries face serious skills shortages and mismatches, and a low supply elasticity in strategic competences even in the light of high skills premia. These countries often rely on training institutions to provide the skills needed in advanced technologies, and fail to recognize that important competences can only be acquired by working in industries. Countries need to develop learning strategies which view industries as an important learning place. And targeting employment in an advanced techno-economic paradigm ensures that the labour force accumulates relevant core competences.

Second, recent empirical evidence shows that patterns of change in employment in terms of labour and skills intensity as well as in terms of gender is influenced by changes in export composition and trading partners. This implies that in order to achieve more productive, skills-intensive and gender-balanced employment patterns it matters what a country exports and to whom it exports. Industrial and trade policies therefore have an important role to play in translating trade liberalization into employment patterns which meet development and productive transformation goals and the country's aspirations in terms of productive employment and decent work.⁷⁴

Third, in a dynamic context, employment policies need to address both the supply and the demand side of the labour market. The human capital model and institutional economics highlight the supply side of skilled workers, arguing that the supply of skills follows the needs in the economy and labor market demand. In a dynamic model of productive transformation, which views productive employment as an integral part of the development process, however, policies and institutions also need to ensure effective use of existing competences in the labour force. This highlights the role of policies to transform the production structure and develop activities and industries in the light of given knowledge and skills structures in the economy. In other words, the demand follows supply. In such a dynamic perspective, technology, investment and trade policies represent important elements of a comprehensive employment strategy.

IV. Concluding remarks

A common thread running through the current debate on industrial policies in developing countries is a focus on catching up and the recognition that there is no “one-size fits-all” and best practice catalogue for the design, implementation and evaluation of industrial policies. Countries differ in their conditions, institutions and capabilities, and policy lessons from the historical experience of successful catching up countries need to take these differences into account.

The three analytical frameworks, however, differ in the concepts of catching up, in development objectives, and the nature and scope of industrial policies. While the growth perspective defines catching up in terms of productivity growth rates, institutional economics measures catching up in terms of structural change, diversification and

⁷³ Nübler, forthcoming.

⁷⁴ Kucera, forthcoming.

sophistication of the production structure, and evolutionary economics views the accumulation of capabilities as the essence of a dynamic catching up process. These different frameworks entail different levels of complexity; they therefore raise different policy issues and assign distinct roles to industrial policies.

Both, the institutional and evolutionary framework are considered as part of a “new” development paradigm as they shift attention from the quantitative analysis of growth to the qualitative dimension and the dynamics of the catching up process. These frameworks are rooted in a long tradition of development thinking and of theories which explicitly aim at explaining economic change and development dynamics.⁷⁵ In this context, it is important to understand that the concept of paradigm and the meaning of paradigm shift in economics differ from the traditional notion of paradigm developed in the context of science. In science, the emergence of a new paradigm implies the **replacement** of the old by the new paradigm since the old one has been proven false and therefore will lose its relevance. This is different in economics where different “paradigms” and “systems of interdependent theories” may co-exist, each one having value depending on the purpose of analysis, and defining the directions and nature of research within their system.

In this sense, the emerging “new development paradigm” reflects a shift in the purpose of analysis from explaining growth in quantitative terms to explaining the quality of growth, the dynamics of the process, and the forces triggering and sustaining the productive transformation process. Both institutional and evolutionary economics provide frameworks and relevant tools which are highly useful in framing the analysis of and designing policies for structural change and learning under country-specific conditions and circumstances. In contrast, by focusing on the quantity of growth and by assuming that capabilities are automatically created “behind the scenes”, the growth framework has limited power in explaining the dynamics of catching up, and in designing industrial policies for country-specific contexts. Growth theories have their value in explaining market-driven processes, in analysing the ingredients for sustainable growth and that “the predictions made can be validated or falsified by the available evidence”.

Finally, the review of the current debate has identified knowledge gaps and important areas for future research. Two priority areas of research are identified. First, the catching up debate largely neglects the employment dimension – both in terms of the impact of catching up on productive employment and in terms of the instrumental role of employment in creating new capabilities and comparative advantages. A second main area of research represents the concept of capabilities. The analysis and formulation of industrial policies in a dynamic context requires a framework which specifies the concepts and nature of individual and collective capabilities, their building blocks and how they shape the dynamics of productive transformation. Such a framework, linking structural changes in production and employment with the accumulation of domestic capabilities embeds industrial policies into the development agenda. The ILO is currently implementing a research project in these areas.

⁷⁵ This body of knowledge embraces the work of the historical schools of the 19th and 20th century (e.g. F. List), the development literature of the 1940s to 1970s (Gerschenkron, Rosenstein- Rodan, Rostow, Hirschman, Nurkse and the “old” institutional and evolutionary economics (e.g. Veblen, Commons, Schumpeter, Myrdal, Nelson and Winter) .

References

- Abramovitz, M. (1986). "Catching Up, Forging Ahead, and Falling Behind". *Journal of Economic History*, 46:2, pp. 385-406.
- Aghion, P. & Durlauf, S. (April 2007). *From growth theory to policy design*. Harvard University.
<http://www.growthcommission.org/storage/cgdev/documents/aghion-durlauf-wbapr3fin.pdf>
- Amsden, A.H. (2009). "Nationality of Firm Ownership in Developing Countries: Who should 'Crowd Out' Whom in Imperfect Markets", in M. Cimoli, G. Dosi & J. E. Stiglitz: *Industrial policy and development: The political economy of capabilities accumulation* (pp. 470-506). Oxford: Oxford University Press.
- Arrow, K.J. (1962). "The economic implications of learning by doing", in *The Review of Economic Studies*, pp. 155-173.
- Becker, G.S. (1975). *Human Capital*. Chicago: The University of Chicago Press.
- Blaug, M. (1976). "Kuhn versus Lakatos or Paradigms versus research programmes in the history of economics", in S. Latsis: *Method and Appraisal in Economics* (pp. 149-180). Cambridge.
- Chang, H.-J. (26 February 2009). *Economic history of the developed world: Lessons for Africa*. Abgerufen am 2011 von Eminent Speakers Program of the African Development Bank:
<http://www.afdb.org/fileadmin/uploads/afdb/News/Chang%20AfDB%20lecture%20text.pdf>.
- Chang, H.-J. (2009). "Hamlet without the Prince of Denmark: How development has disappeared from today's 'development' discourse". in S. Khan & J. Christiansen, *Towards new developmentalism: Market as means rather than master*. Abingdon: Routledge.
- Chang, H.-J. (2002). *Kicking away the ladder: Development strategy in historical perspective*. London: Anthem Press.
- Cimoli, M. & Katz, J. (2003). "Structural reforms, technological gaps and economic development: A Latin American perspective", in *Industrial and Corporate Change*, 12 (2), pp. 387-411.
- Cimoli, M., Dosi, G. & Nelson, R. (2006). "Institutions and policies shaping industrial development: An introductory note". *Laboratory of Economics and Management (Working Paper Series)*, Sant'Anna School of Advanced Studies, Pisa, Italy.
- Cimoli, M., Dosi, G. & Stiglitz, J. (2009). *Industrial policy and development: The political economy of capabilities accumulation*. Oxford: Oxford University Press.
- Cline, R.W. (1983). *Trade policy and economic welfare*. Oxford: Clarendon Press.
- Commission on Growth and Development. (2008). "The growth report: Strategies for sustained growth and inclusive development", The World Bank, Washington, D.C.
- Dahlman, J., Ross-Larson, B. & Westphal, L. E. (1987). "Managing technological development: Lessons from the newly industrializing countries", in *World Development*, pp. 759-775.

- De Ferranti, D.M. (2003). *Closing the gap in education and technology*. World Bank Latin American and Caribbean studies, The World Bank, Washington DC.
- Di Maio, M. (2009). "Industrial policies in developing countries: History and perspectives", in M. Cimoli, G. Dosi & J. E. Stiglitz: *Industrial policy and development: The political economy of capabilities accumulation* (pp. 107-144). Oxford: Oxford University Press.
- Dosi, G., Nelson, R., & Winter, S. (2000). "Introduction: The nature and dynamics of organizational capabilities", in G. Dosi, R. Nelson and S. Winter (eds.) (2000). *The Nature and Dynamics of Organization Capabilities*. Oxford University Press, Oxford.
- Fei, J. & Ranis, G. (1964). *Development of the labour surplus economy: Theory and policy*. Homewood: Richard D. Irwin.
- Gerschenkron, A. (1962). *Economic backwardness in historical perspective: A book of essays*. Cambridge, Mass.: Belknap.
- Gomery, E.R. & Baumol, W.J. (2000). *Global trade and conflicting national interests*. Boston: MIT Press.
- Harrison, A. & Rodriguez-Clare, A. (2009). "Trade, foreign investment, and industrial policy for developing countries". *NBER Working Papers 15261*. National Bureau of Economic Research, Inc.
- Hausmann, R. & Klinger, B. (2006). "Structural transformation and patterns of comparative advantage in the product space". *CID Working Paper 12*.
- Hausmann, R. & Rodrik, D. (2003). "Economic development as self-discovery", in *Journal of Development Economics*, 722, pp. 603-633.
- Hausmann, R., Rodrik, D. & Sabel, C. (2007). "Reconfiguring industrial policy: A framework with an application to South Africa". *Harvard Kennedy School Working Paper Number RWP08-031*.
- Hidalgo, C.A. & Hausmann, R. (2009). "The building blocks of economic complexity". *Proceedings of the National Academy of Sciences*, 106, 10570-10575.
- Hidalgo, C.A., Klinger, B., Barabasi, A.-L. & Hausmann, R. (2007). "The product space conditions the development of nations". *Science*, 317: 482-487.
- Hobday, M. & Perini, F. (2009). "Latecomer entrepreneurship: A policy perspective", in M. Cimoli, G. Dosi & J. E. Stiglitz: *Industrial policy and development: The political economy of capabilities accumulation* (pp. 470-506). Oxford: Oxford University Press.
- Imbs, J. & Wacziarg, R. (2003). "Stages of Diversification", in *The American Economic Review*, 931, pp. 63-86.
- International Labour Organisation. (2011). *Growth, Employment and Decent Work in the Least Developed Countries, Report on the International Labour Office for the Fourth UN Conference on the Least Developed Countries, 9-13 May 2011 - Turkey*. Geneva: ILO.
- Khan, M.H. & Blankenburg, S. (2009). "The political economy of industrial policy in Asia and Latin America", in M. Cimoli, G. Dosi & J.E. Stiglitz: *Industrial policy and development: The political economy of capabilities accumulation* (pp. 336-378). Oxford: Oxford University Press.

- Klinger, B. & Lederman, D. (2004). "Discovery and development: An empirical exploration of new products". *World Bank Policy Research Working Paper* 3983 .
- Kucera, D. (forthcoming). "Trade liberalization, employment and inequality in India and South Africa". *International Labour Review*, Vol. 150, No. 1 .
- Kuhn, T. (1970). *The Structure of Scientific Revolutions* (2nd Edition, Aug.). Chicago.
- Lall, S. (2000). "Skills, competitiveness and policy in developing countries". *QEH Working Paper Series Working Paper* 46 .
<http://www3.qeh.ox.ac.uk/pdf/qehwp/qehwps46.pdf>
- Lall, S. (1992). "Technological capabilities and industrialization". *World Development*, 20 (2), pp. 165-186.
- Lall, S. (2000). "The technological structure and performance of developing country manufactured exports, 1985-98". *Oxford Development Studies*, 283, 337-69.
- Lall, S. & Teubal, M. (1998). "'Market stimulating' technology policies in developing countries: A framework with examples from East Asia". *World Development*, 268, pp. 1369-1385.
- Lewis, W. (1954). "Economic development with unlimited supplies of labour". *Manchester School*, 22 (2), 139-191.
- Lin, J.Y. (2011). "New structural economics: a framework for rethinking development". *Policy Research Working Paper* 5197. The World Bank.
- List, F. (1841). *Das nationale System der politischen Oekonomie*. Stuttgart und Tübingen: J. G. Gotta'scher Verlag.
- List, F. (1856). *The national system of political economy*. Philadelphia: JB Lippincott & Co.
- Lucas, R.E. (1988). "On the mechanics of economic development", in *Journal of Monetary Economics*, 3-42.
- Nelson, R. (2008). Economic development from the perspective of evolutionary economic theory. *Oxford Development Studies*, 36(1), pp. 9-23.
- Nübler, I. (forthcoming). *Capabilities for productive transformation*. Geneva.
- Possas, M.L. & Borges, H. (2009). "Competition policy and industrial development", in M. Cimoli, G. Dosi & J.E. Stiglitz: *Industrial policy and development: The political economy of capabilities accumulation* (S. 447-470). Oxford: Oxford University Press.
- Reinert, E.S. (2009). "Emulation versus comparative advantage: Competing and complementary principles in the history of economic policy", in M. Cimoli, G. Dosi & J.E. Stiglitz: *Industrial policy and development: The political economy of capabilities accumulation* (S. 79-107). Oxford: Oxford University Press.
- Ricardo, D. (1817). *On the principles of political economy and taxation*.
- Rodrik, D. (2009). *Growth after the crisis*.
http://www.growthcommission.org/storage/cgdev/documents/financial_crisis/rodrikafterthecrisis.pdf
- Rodrik, D. (2007). *One economics, many recipes: Globalization, institutions and economic growth*. Princeton: Princeton University Press.

Rodrik, D. (2004). *Industrial policy for the 21st century*. <http://ksghome.harvard.edu/drodrik/UNIDOsep.pdf>

Salazar-Xirinachs, J.M. & Nübler, I. (2010). Book review: M. Cimoli, G. Dosi, J. Stiglitz (2009) *Industrial Policy and Development - The Political Economy of Capabilities Accumulation*. *International Labour Review*, 135-140.

Schultz, T.W. (1962). "Reflections on investment in man", in *The Journal of Political Economy*, 705, pp. 1-8.

Shafaeddin, M. (2006). "Is industrial policy relevant in the 21st century?", in *New approaches to the design of development policies*. Beirut: Arab Planning Institute.

Teubal, M. (2008). "The state and development governance". *Background paper for the least developed countries report 2009 (UNCTAD)*.

The Economist (7 August 2010). "Picking winners, saving losers", in *The Economist* (S. 54-56).

United Nations Conference on Trade and Development. (2007). *The least developed countries report 2007: Knowledge, technological learning and innovation for development*. Geneva: United Nations Conference on Trade and Development.

United Nations Industrial Development Organization. (2005). *Industrial Development Report - Capability building for catching up: Historical, empirical and policy dimensions*. Vienna: UNIDO

United Nations Industrial Development Organization. (2009). *Industrial Development Report - Breaking in and Moving up: New Industrial Challenges for the Bottom Billion and the Middle-Income Countries*. Vienna: UNIDO.

Veblen, T. (1915). *Imperial Germany and the Industrial Revolution*. New York: Kelley.

World Trade Organization. (2006). *World trade report: Exploring the links between subsidies, trade and the WTO*. Geneva: World Trade Organization.

Employment Working Papers

2008

- 1 Challenging the myths about learning and training in small and medium-sized enterprises: Implications for public policy;
ISBN 978-92-2-120555-5 (print); 978-92-2-120556-2 (web pdf)
David Ashton, Johnny Sung, Arwen Raddon, Trevor Riordan
- 2 Integrating mass media in small enterprise development: Current knowledge and good practices;
ISBN 978-92-2-121142-6 (print); 978-92-2-121143-3 (web pdf)
Gavin Anderson. Edited by Karl-Oskar Olming, Nicolas MacFarquhar
- 3 Recognizing ability: The skills and productivity of persons with disabilities. A literature review;
ISBN 978-92-2-121271-3 (print); 978-92-2-121272-0 (web pdf)
Tony Powers
- 4 Offshoring and employment in the developing world: The case of Costa Rica;
ISBN 978-92-2-121259-1 (print); 978-92-2-121260-7 (web pdf)
Christoph Ernst, Diego Sanchez-Ancochea
- 5 Skills and productivity in the informal economy;
ISBN 978-92-2-121273-7 (print); 978-92-2-121274-4 (web pdf)
Robert Palmer
- 6 Challenges and approaches to connect skills development to productivity and employment growth: India;
unpublished
C. S. Venkata Ratnam, Arvind Chaturvedi
- 7 Improving skills and productivity of disadvantaged youth;
ISBN 978-92-2-121277-5 (print); 978-92-2-121278-2 (web pdf)
David H. Freedman
- 8 Skills development for industrial clusters: A preliminary review;
ISBN 978-92-2-121279-9 (print); 978-92-2-121280-5 (web pdf)
Marco Marchese, Akiko Sakamoto
- 9 The impact of globalization and macroeconomic change on employment in Mauritius: What next in the post-MFA era?;
ISBN 978-92-2-120235-6 (print); 978-92-2-120236-3 (web pdf)
Naoko Otake

- 10 School-to-work transition: Evidence from Nepal;
ISBN 978-92-2-121354-3 (print); 978-92-2-121355-0 (web pdf)
New Era

- 11 A perspective from the MNE Declaration to the present: Mistakes, surprises and newly important policy implications;
ISBN 978-92-2-120606-4 (print); 978-92-2-120607-1 (web pdf)
Theodore H. Moran

- 12 Gobiernos locales, turismo comunitario y sus redes:
Memoria: V Encuentro consultivo regional (REDTURS);
ISBN 978-92-2-321430-2 (print); 978-92-2-321431-9 (web pdf)

- 13 Assessing vulnerable employment: The role of status and sector indicators in Pakistan, Namibia and Brazil;
ISBN 978-92-2-121283-6 (print); 978-92-2-121284-3 (web pdf)
Theo Sparreboom, Michael P.F. de Gier

- 14 School-to-work transitions in Mongolia;
ISBN 978-92-2-121524-0 (print); 978-92-2-121525-7 (web pdf)
Francesco Pastore

- 15 Are there optimal global configurations of labour market flexibility and security? Tackling the “flexicurity” oxymoron;
ISBN 978-92-2-121536-3 (print); 978-92-2-121537-0 (web pdf)
Miriam Abu Sharkh

- 16 The impact of macroeconomic change on employment in the retail sector in India: Policy implications for growth, sectoral change and employment;
ISBN 978-92-2-120736-8 (print); 978-92-2-120727-6 (web pdf)
Jayati Ghosh, Amitayu Sengupta, Anamitra Roychoudhury

- 17 From corporate-centred security to flexicurity in Japan;
ISBN 978-92-2-121776-3 (print); 978-92-2-121777-0 (web pdf)
Kazutoshi Chatani

- 18 A view on international labour standards, labour law and MSEs;
ISBN 978-92-2-121753-4 (print); 978-92-2-121754-1 (web pdf)
Julio Faundez

- 19 Economic growth, employment and poverty in the Middle East and North Africa;
ISBN 978-92-2-121782-4 (print); 978-92-2-121783-1 (web pdf)
Mahmood Messkoub

- 20 Global agri-food chains: Employment and social issues in fresh fruit and vegetables;
ISBN 978-92-2-121941-5(print); 978-92-2-121942-2 (web pdf)
Sarah Best, Ivanka Mamic
- 21 Trade agreements and employment: Chile 1996-2003;
ISBN 978-92-121962-0 (print); 978-92-121963-7 (web pdf)
- 22 The employment effects of North-South trade and technological change;
ISBN 978-92-2-121964-4 (print); 978-92-2-121965-1 (web pdf)
Nomaan Majid
- 23 Voluntary social initiatives in fresh fruit and vegetable value chains;
ISBN 978-92-2-122007-7 (print); 978-92-2-122008-4 (web pdf)
Sarah Best, Ivanka Mamic
- 24 Crecimiento económico y empleo de jóvenes en Chile: Análisis sectorial y proyecciones;
ISBN 978-92-2-321599-6 (print); 978-92-2-321600-9 (web pdf)
Mario D. Velásquez Pinto
- 25 The impact of codes and standards on investment flows to developing countries;
ISBN 978-92-2-122114-2 (print); 978-92-2-122115-9 (web pdf)
Dirk Willem te Velde
- 26 The promotion of respect for workers' rights in the banking sector:
Current practice and future prospects;
ISBN 978-92-2-122116-6 (print); 978-2-122117-3 (web pdf)
Emily Sims

2009

- 27 Labour market information and analysis for skills development;
ISBN 978-92-2-122151-7 (print); 978-92-2-122152-4 (web pdf)
Theo Sparreboom, Marcus Powell
- 28 Global reach - Local relationships: Corporate social responsibility, worker's rights and local development;
ISBN 978-92-2-122222-4 (print); 978-92-2-122212-5 (web pdf)
Anne Posthuma, Emily Sims
- 29 Investing in the workforce: Social investors and international labour standards;
ISBN 978-92-2-122288-0 (print); 978-92-2-122289-7 (web pdf)
Elizabeth Umlas

- 30 Rising food prices and their implications for employment, decent work and poverty reduction;
ISBN 978-92-2-122331-3 (print); 978-92-2-122332-0 (web pdf)
Rizwanul Islam, Graeme Buckley
- 31 Economic implications of labour and labour-related laws on MSEs: A quick review of the Latin American experience;
ISBN 978-92-2-122368-9 (print); 978-92-2-122369-6 (web pdf)
Juan Chacaltana
- 32 Understanding informal apprenticeship – Findings from empirical research in Tanzania;
ISBN 978-92-2-122351-1 (print); 978-92-2-122352-8 (web pdf)
Irmgard Nübler, Christine Hofmann, Clemens Greiner
- 33 Partnerships for youth employment. A review of selected community-based initiatives;
ISBN 978-92-2-122468-6 (print); 978-92-2-122469-3 (web pdf)
Peter Kenyon
- 34 The effects of fiscal stimulus packages on employment;
ISBN 978-92-2-122489-1 (print); 978-92-2-122490-7 (web pdf)
Veena Jha
- 35 Labour market policies in times of crisis;
ISBN 978-92-2-122510-2 (print); 978-92-2-122511-9 (web pdf)
Sandrine Cazes, Sher Verick, Caroline Heuer
- 36 The global economic crisis and developing countries: Transmission channels, fiscal and policy space and the design of national responses;
ISBN 978-92-2-122544-7 (print); 978-92-2-122545-4 (web pdf)
Iyanatul Islam
- 37 Rethinking monetary and financial policy:
Practical suggestions for monitoring financial stability while generating employment and poverty reduction;
ISBN 978-92-2-122514-0 (print); 978-92-2-122515-7 (web pdf)
Gerald Epstein
- 38 Promoting employment-intensive growth in Bangladesh: Policy analysis of the manufacturing and service sectors;
ISBN 978-92-2-122540-9 (print); 978-92-2-122541-6 (web pdf)
Nazneen Ahmed, Mohammad Yunus, Harunur Rashid Bhuyan
- 39 The well-being of labour in contemporary Indian economy: What's active labour market policy got to do with it?;
ISBN 978-92-2-122622-2 (print); 978-92-2-122623-9 (web pdf)
Praveen Jha

- 40 The global recession and developing countries;
ISBN 978-92-2-122847-9 (print); 978-92-2-122848-6 (web pdf)
Nomaan Majid
- 41 Offshoring and employment in the developing world: Business process outsourcing in the Philippines;
ISBN 978-92-2-122845-5 (print); 978-92-2-122846-2 (web pdf)
Miriam Bird, Christoph Ernst
- 42 A survey of the Great Depression as recorded in the International Labour Review, 1931-1939;
ISBN 978-92-2-122843-1 (print); 978-92-2-122844-8 (web pdf)
Rod Mamudi
- 43 The price of exclusion: The economic consequences of excluding people with disabilities from the world of work;
ISBN 978-92-2-122921-6 (print); 978-92-2-122922-3 (web pdf)
Sebastian Backup
- 44 Researching NQFs: Some conceptual issues;
ISBN 978-92-2-123066-3 (print), 978-92-2-123067-0 (web pdf)
Stephanie Allais, David Raffae, Michael Young
- 45 Learning from the first qualifications frameworks;
ISBN 978-92-2-123068-7 (print), 978-92-2-123069-4 (web pdf)
Stephanie Allais, David Raffae, Rob Strathdee, Leesa Wheelahan, Michael Young
- 46 International framework agreements and global social dialogue: Lessons from the Daimler case;
ISBN 978-92-2-122353-5 (print); 978-92-2-122354-2 (web pdf)
Dimitris Stevis

2010

- 47 International framework agreements and global social dialogue: Parameters and prospects;
ISBN 978-92-2-123298-8 (print); 978-92-2-122299-5 (web pdf)
Dimitris Stevis
- 48 Unravelling the impact of the global financial crisis on the South African labour market;
ISBN 978-92-2-123296-4 (print); 978-92-2-123297-1 (web pdf)
Sher Verick

- 49 Guiding structural change: The role of government in development;
ISBN 978-92-2-123340-4 (print); 978-92-2-123341-1 (web pdf)
Matthew Carson
- 50 Les politiques du marché du travail et de l'emploi au Burkina Faso;
ISBN 978-92-2-223394-6 (print); 978-92-2-223395-3 (web pdf)
Lassané Ouedraogo, Adama Zerbo
- 51 Characterizing the school-to-work transitions of young men and women:
Evidence from the ILO school-to-work transition surveys;
ISBN 978-92-2-122990-2 (print); 978-92-2-122991-9 (web pdf)
Makiko Matsumoto, Sara Elder
- 52 Exploring the linkages between investment and employment in Moldova:
A time-series analysis
ISBN 978-92-2-122990-2 (print); 978-92-2-122991-9 (web pdf)
Stefania Villa
- 53 The crisis of orthodox macroeconomic policy: The case for a renewed commitment to full
employment;
ISBN 978-92-2-123512-5 (print); 978-92-2-123513-2 (web pdf)
Muhammed Muqtada
- 54 Trade contraction in the global crisis: Employment and inequality effects in India and South
Africa;
ISBN 978-92-2-2124037-2 (print); 978-92-2-2124038-9 (web pdf)
David Kucera, Leanne Roncolato, Erik von Uexkull
- 55 The impact of crisis-related changes in trade flows on employment: Incomes, regional and
sectoral development in Brazil;
Forthcoming
Scott McDonald, Marion Janse, Erik von Uexkull
- 56 Envejecimiento y Empleo en América Latina y el Caribe;
ISBN 978-92-2-323631-1 (print); 978-92-2-323632-8 (web pdf)
Jorge A. Paz
- 57 Demographic ageing and employment in China;
ISBN 978-92-2-123580-4 (print); 978-92-2-123581-1 (web pdf)
Du Yang, Wrang Meiyan
- 58 Employment, poverty and economic development in Madagascar: A macroeconomic
framework;
ISBN 978-92-2-123398-5 (print); 978-92-2-123399-2 (web pdf)
Gerald Epstein, James Heintz, Léonce Ndikumana, Grace Chang

- 59 The Korean labour market: Some historical macroeconomic perspectives;
ISBN 978-92-2-123675-7 (print); 978-92-2-123676-4 (web pdf)
Anne Zooyob

- 60 Les Accords de Partenariat Economique et le travail décent:
Quels enjeux pour l'Afrique de l'ouest et l'Afrique centrale?;
ISBN 978-92-2-223727-2 (print); 978-92-2-223728-9 (web pdf)
Eléonore d'Achon; Nicolas Gérard

- 61 The great recession of 2008-2009: Causes, consequences and policy responses;
ISBN 978-92-2-123729-7 (print); 978-92-2-123730-3 (web pdf)
Iyanatul Islam, Sher Verick

- 62 Rwanda forging ahead: The challenge of getting everybody on board;
ISBN 978-92-2-123771-6 (print); 978-92-2-123772-3 (web pdf)
Per Ronnås (ILO), Karl Backéus (Sida); Elina Scheja (Sida)

- 63 Growth, economic policies and employment linkages in Mediterranean countries:
The cases of Egypt, Israel, Morocco and Turkey;
ISBN 978-92-2-123779-2 (print); 978-92-2-123780-8 (web pdf)
Gouda Abdel-Khalek

- 64 Labour market policies and institutions with a focus on inclusion, equal opportunities and
the informal economy;
ISBN 978-92-2-123787-7 (print); 978-92-2-123788-4 (web pdf)
Mariangels Fortuny, Jalal Al Hussein

- 65 Les institutions du marché du travail face aux défis du développement:
Le cas du Mali;
ISBN 978-92-2-223833-0 (print); 978-92-2-223834-7 (web pdf)
Modibo Traore, Youssouf Sissoko

- 66 Les institutions du marché du travail face aux défis du développement:
Le cas du Bénin;
ISBN 978-92-2-223913-9 (print); 978-92-2-223914-6 (web pdf)
Albert Honlonkou, Dominique Odjo Ogoudele

- 67 What role for labour market policies and institutions in development? Enhancing security in
developing countries and emerging economies;
ISBN 978-92-2-124033-4 (print); 978-92-2-124034-1 (web pdf)
Sandrine Cazes, Sher Verick

- 68 The role of openness and labour market institutions for employment dynamics during
economic crises;
Forthcoming
Elisa Geronzi, Erik von Uexküll, Sebastian Weber

- 69 Towards the right to work:
Innovations in Public Employment programmes (IPEP);
ISBN 978-92-2-124236-9 (print); 978-92-2-1244237-6 (web pdf)
Maikel Lieuw-Kie-Song, Kate Philip, Mito Tsukamoto, Marc van Imschoot
- 70 The impact of the economic and financial crisis on youth employment: Measures for labour
market recovery in the European Union, Canada and the United States;
ISBN 978-92-2-124378-6 (print); 978-92-2-124379-3 (web pdf)
Niall O'Higgins
- 71 El impacto de la crisis económica y financiera sobre el empleo juvenil en América Latina:
Medidas des mercado laboral para promover la recuperación del empleo juvenil;
ISBN 978-92-2-324384-5 (print); 978-92-2-324385-2 (web pdf)
Federio Tong
- 72 On the income dimension of employment in developing countries;
ISBN: 978-92-2-124429-5 (print); 978-92-2-124430-1 (web pdf)
Nomaan Majid
- 73 Employment diagnostic analysis: Malawi;
ISBN 978-92-2-123101-0 (print); 978-92-2-124102-7 (web pdf)
Per Ronnas
- 74 Global economic crisis, gender and employment:
The impact and policy response;
ISBN 978-92-2-14169-0 (print); 978-92-2-124170-6 (web pdf)
Naoko Otobe

2011

- 75 Mainstreaming environmental issues in sustainable enterprises: An exploration of issues,
experiences and options;
ISBN 978-92-2-124557-5 (print); 978-92-2-124558-2 (web pdf)
Maria Sabrina De Gobbi
- 76 The dynamics of employment, the labour market and the economy in Nepal
ISBN 978-92-2-123605-3 (print); 978-92-2-124606-0 (web pdf)
Shagun Khare , Anja Slany
- 77 Industrial policies and capabilities for catching up:
Frameworks and paradigms
Irmgard Nübler

A complete list of previous working papers can be found on:
<http://www.ilo.org/employment>

Employment Sector

**For more information visit our site:
<http://www.ilo.org/employment>**

International Labour Office
Employment Sector
4, route des Morillons
CH-1211 Geneva 22

Email: edempdoc@ilo.org