Regional economic policies as a tool to modernisation - experiences from Germany and Russia

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Shifts in the world economy: technological challenges and competition

- Until the 1970s the international economic and political world order seemed to be in a pretty stable state.
  - The world economy then was dominated by a few European and Anglo-Saxon OECD countries, which accepted the political, military and economic leadership of the US in the transatlantic hemisphere.
  - The existence of the the militarily strong Soviet Union did not threaten the constellation and composition of forces dominating the world‘s economic system . The USSR was considered and proved to be economically weak.
  - Today, the appearance of new technologies (nano, biotech, cloud computing, renewable energies etc.) is altering the constellation and composition of forces again; if we take a closer look at the economic performance of the three industrial-technological champions in the global economy, we will find that such process is already evident.

Changes in the world economy 1990-2016 (prog.)- a new divide?

Three Forces of change

- The structure of the international economic system was challenged in the middle of the 1970s by three interrelated developments/ revolutions:
- First, the **two oil shocks** of the seventies , 1973 and 1978, caused a race toward energy efficient machinery, and led to splits in the OECD -world;
- Second, the appearance of **new Actors, the Pacific Rim countries**, on the economic scene changed the terms of competition; they conquered market shares and caused the need for industrial restructuring;
- Third, the **arrival of information and communications technologies** led to fundamental changes in production techniques, in the organization of work and the quality of production and products. Mass production itself was not altered but the new technologies required profound adjustments in the internal organization of enterprises and in relationships between enterprises (invisible corporation, just-in-time etc.).

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Broadening of technologies

- The spread and pace of new generations of IT technologies throughout industrial sectors intensified already underlying trends of internationalization of production, R & D and ownership.

Convergence of factors

- All three factors worked simultaneously, enforcing each other. Increased competition led to a hitherto unforeseen race to modernize industrial sectors in order to reach lasting economic growth and to preserve a competitive position among an enlarged group of global competitors.

De-industrialization

- Since the end of the 1970s nearly all countries of Europe and the USA experienced structural crises in industrial sectors simultaneously, losing their competitive edge.
- Decline and loss of competitiveness started in textiles, spread to coal, iron and steel, affected ship-building and moved up the ladder of technology to cars, electronics, optics, semiconductors, computing, telecommunications etc.

Social Consequences of De-industrialization

- From the early 1980s on OECD-states lost market shares in the global economy. The most serious social and economic consequences were discernible in the regions of Europe.
- There the downfall/elimination of industrial sectors let to poverty, migration and the withdrawal/break down of institutions.
- Examples are: the German Ruhr Area, the French Pas de Calais or Lothringia, Wallone in Belgium, Wales, the Middle and Nothern parts of the UK, etc.

Counterstrategies : the failure of subsidies

- Attempts to catch up or to diminish technology gaps blossomed during the 1980s in Europe, from Scotland to Northern Italy. Even the European Union joined such efforts with its EUREKA- program.
- However, after some years of state intervention, it became apparent, that strategies based on subsidies to keep the old economic structures alive, did not work.

Counterstrategies , stage two

- **Strategies of development changed completely during the 1980s** in Germany and elsewhere in Europe.
- The national State or its centralized counterparts were not able to protect industries without hope for survival. – and competition from the new Asian-Pacific actors did not stop.
- Since the end of the 1980s nationally protected industrial structures were thinned and phased out all over Europe. Subsidies were more focused on complexes which were trusted to survive or declared national strategic sectors.

Counterstrategies, stage three

- The pace new generations of technologies were created, and the very nature of IT-technologies, i.e. their decentralized and open architecture as well as the speed of their diffusion to industries let to the realization that:
  - There is no" Sonderweg" to develop a national solution to the challenges they pose
  - There is even no "golden mean" to transfer/diffuse knowledge.

  Instead, in order to optimize its use free access to information and/or joint international R & D ventures were necessary in order to achieve compatibility, interrelations and open structures.

  As a consequence, protectionism gave way to intensified forms of cooperation and even integration (e.g. the European Union after Maastricht 1992). EUREKA, AIRBUS, GALILEO etc.

  Internationalization of capital flows and international trade regimes, e.g. the WTO, strengthened such trends which we now define as **globalization**. In the framework of such tendencies the term "strategic partnership" was created.

R&D, Knowledge and Diffusion

- No doubt, knowledge is vital for catching up or for modernisisation.
- However, as vital and a pre-requisite for long-term increases in economic growth and wealth, is the **diffusion of knowledge**.
- To favor diffusion, the institutional setting should allow knowledge to move freely across departmental borders, and not to be stuck where it was created.

Pre-conditions for knowledge diffusion

- **Regional economic policies of reconstruction** to upgrade/modernize/restructure firms and corporations all followed a similar track, and used common practices and tools. The can be described as a **European approach or a Model of the Northern Hemisphere.**
- The core idea is to develop a **stable relationship between science & research institutions, industrial sectors, finance providers and governments on the regional level**. Such interlinkages should include at some stage even social organizations if major schemes of restructuring are planned which would affect larger sections of the population.
- The network linkages need to be **coordinated through a semi-independent but authorized agency** to deal with all aspects of regional economic and technological innovation: **Economic reconstruction agencies**, sprang into existence .

Regional economic reconstruction agencies

- All of them share similar functions, apply comparable tools and methods but work under different cultural – political and institutional conditions. This makes it difficult to transfer models as blueprints or apply experiences. They do not need to function where projected.
- The political-institutional setting in which they operate seems to be crucial for achieving goals.
- The most advanced tool to attract FDI‘s and to diversify the regional economy is a „One-stop economic reconstruction agency“ . Such agency provides overall solutions for incoming investors.

Strategies

- Strategies to catch up can be roughly being divided into two categories:

- Either **to develop an autochthonous R&D base by mobilizing indigenous resources**, including direct or indirect financial means of state support. Scholarships and studying abroad schemes at elite universities ; incentives for students, scientists (e.g. grants to build start ups in their home countries) to return.

- If such an approach seems difficult because essential preconditions are lacking (a weak R&D basis, shortage of managerial skilled experts etc.) another track might be more promising. Simply **to buy technologically advanced foreign firms and attract brains from abroad**.

- **At times a mixture of both approaches is reasonable**.

- To enter into joint ventures with foreign companies, or to establish links to R&D facilities of other countries might be a solution as well. Within an integrated union of states like the EU, such strategies are viable; however non-members will confront ideological and political barriers to embark successfully on such a development path. To illustrate: Russia's attempt to buy into EADS was rebuked by both the Berlin and Paris governments out of political motivation. Comparable behavioral pattern are noticeable in Russia.

Two approaches within the European Model

- We can clearly distinguish between a **French and a German approach.**
- The difference is determined by the political structure of both countries. In Germany, as a federal state, partnerships between industry and science has traditionally been the task of the regional governments (the *Länder*). The German science & research structure is, apart from some very huge research institutions, basically regionalized, put under the authority of Länder governments.

Germany‘s Research System

- In Germany, the public research system consists of (1) universities, (2) universities of applied sciences (*Fachhochschulen*), which are in majority run by the governments of the *Länder*, and (3) extra-university research.
- Most extra-university research institutes belong either to the Max Planck Society, the Helmholtz Association, the Fraunhofer Gesellschaft, or the Leibniz Society.
- Some of them do have explicit technology transfer missions. This is especially true for the Fraunhofer Gesellschaft with its about 17,000 employees and 60 research centers. These centers engage in applied research and development, a large part of which is conducted in collaboration with firms.”

Role of State in R&D, Delevopment

- Germany as one of the industrial and technological most advanced countries in the EU, **the central state never played a major role in restructuring, renovating or modernizing economic sectors**. Due to the federal composition of the political system, the **role to act as an agent of modernisation was given to the regional state**, i.e. the governments of the German Länder.
- However, there was one exception from such rule: the restructuring of the former GDR, East Germany.

The enabling state

- For securing the access to and the free flow of knowledge and technologies between countries and firms the traditional role model of the state was enhanced and changed. The state became an agent of transformation.
- The term "**enabling state**" appeared to describe its specific role for transformation: i.e. the financial support to research institutions or universities, assisting vocational training to qualify needed managers and a work force, and to establish frameworks and connections for technology diffusion among participating industrial sectors.

Functions of the enabling state

- The **enabling state will not recommend a top down approach for promoting social and economic development.** Its role is best achieved in an environment characterized by decentralized power sharing between various levels of government, i.e. the federal composition of power.
- The **state must restraint itself from intervening into the process of generating technology** or directing the fusion between research and commercial use.
- The enabling state's most important function is **to mobilize the participation of social and interest groups for a concept of sustainable development**.
- In the framework of establishing such participatory model, the enabling state operates as one player among an ensemble of other forces to promote goals of innovation, technological change and its application, diffusion to traditional industrial sectors.

The enabling state as the core element of the European development model

- The **fusion of high technology and traditional industry in a network of participating actors, grouped around the “enabling ” or regional state characterizes the European model and marks its fundamental difference to US-American experiences.**

The special case of rebuilding the GDR: stage one: the predominance of the central state

- The rebuilding of East Germany was costly and did often not reflect the interests of the new East German regional states and their working populations.
- Western German corporations called the tunes; put pressure on the then Bonn Government not to revive possible competitors:
- a specially designed institution for privatization, the **"Treuhand"**, tried to implement the sales of state property- and to protect West-German business interests.
- The sale of all state property in East Germany amounted to a loss of more then 400 Billion German Marks.

Costs of restructuring

- Since 1990 the costs of rebuilding the infrastructure, massive social support via transfer payments and SME-credits for restructuring amounted to 1,2 trillion Euros.
- Still today the new German East receives approx. 80 Billion Euros a year in transfer payments.
- The money was/is raised through taxes and state debt.

Twenty years of tears and protest- but at last a success story

- **Present-day East Germany is a totally different country**: New infrastructures, new or renovated housing, German and foreign investments in high technology and industrial sites,
- the rise of GNP by 200 % since 1991,
- the increase of private incomes by 50%, less environmental damages and inner cities which have undergone renewal and modernisation.
- The economic performance hovers around 72% of West Germany's one.
- Both parts of the country will shortly been evenly based. Industrial productivity rates are narrowing, wage differences will be terminated soon.

GDR-a strategy that worked

- **The industrial renovation of the East was done by fusing traditional industrial sectors with high technology**.
- In addition, high tech core industries were established to service future needs and are based on concepts of minimal energy use.
- Today East Germany features a" Solar Valley" in the vicinity of Leipzig, and the technological most advanced car manufacturing sites are located near Dresden in Saxony.
- Old petro-chemical complexes have been radically restructured and geared towards new functions, attracting domestic and foreign FDI's. One striking example is "Chemie Park Bitterfeld Wolfen", a former run down chemical complex. After restructuring, the Park now house over 360 firms and internationally integrated corporations. Techno parks elsewhere have been introduced, although with mixed results.
- The educational system and universities of East Germany were fundamentally altered, and there is barely a difference in quality and performance with educational institutions of Western Germany. Given their traditional focus on sciences, they are functioning now in close cooperation with industry and regional development projects.

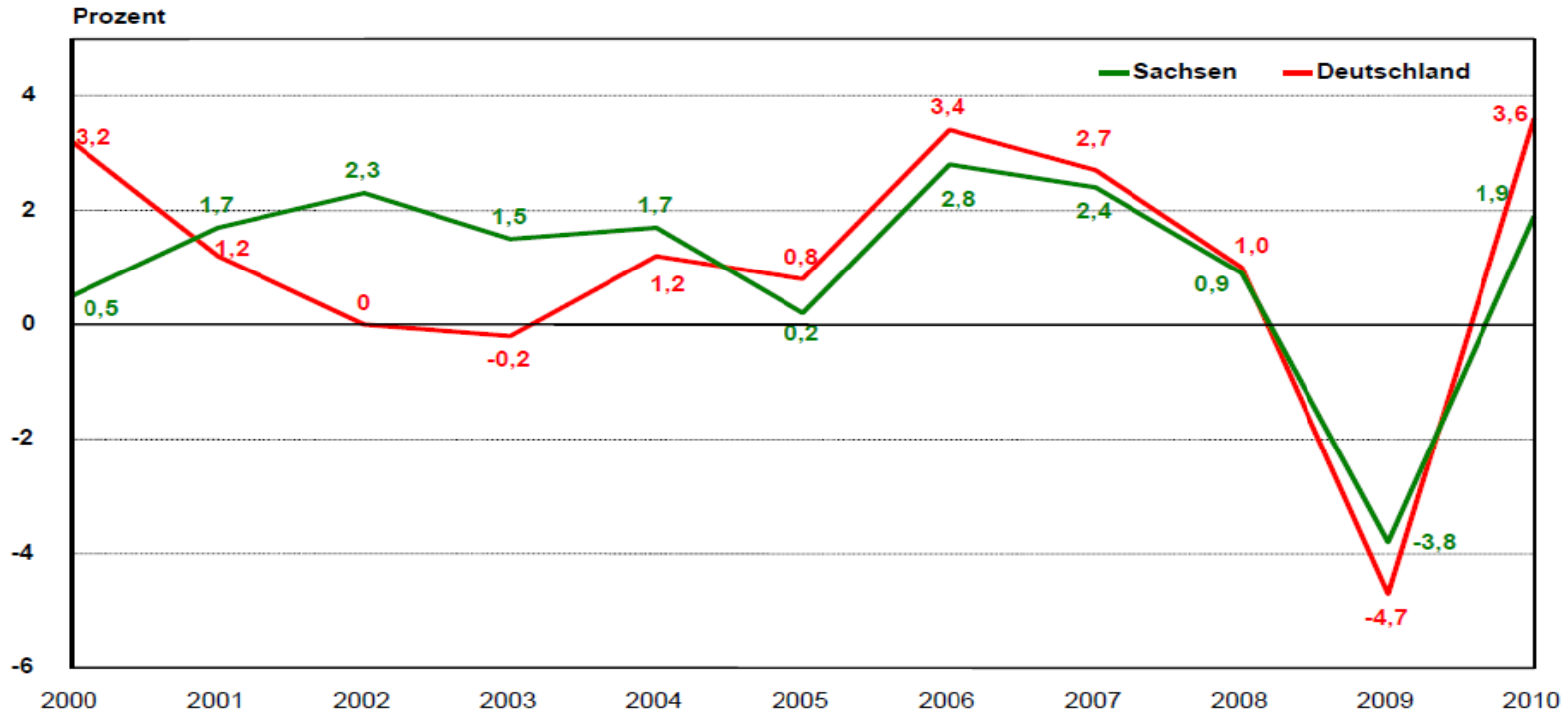
The Freistaat of Saxony: a model of success

- As expected, tools and methods designed for rebuilding the East German economy did not do respond to the challenges of transforming a former socialist economy. Experiences of such magnitude were not available. Especially cultural-educational factors, as different attitudes to work and poor quality of industrial and service performances caused serious problems and were unknown from earlier experiences in West Germany.
- If we look at the economic performance of one of the highest industrialized countries in East Germany, Saxony, the dynamism of change and development which occurred during the last ten years becomes visible.

Economic growth 2000-2010
Saxony/ Germany

Wirtschaftliches Wachstum im Freistaat Sachsen

Jährliche Zuwachsraten des preisbereinigten Bruttoinlandsprodukts

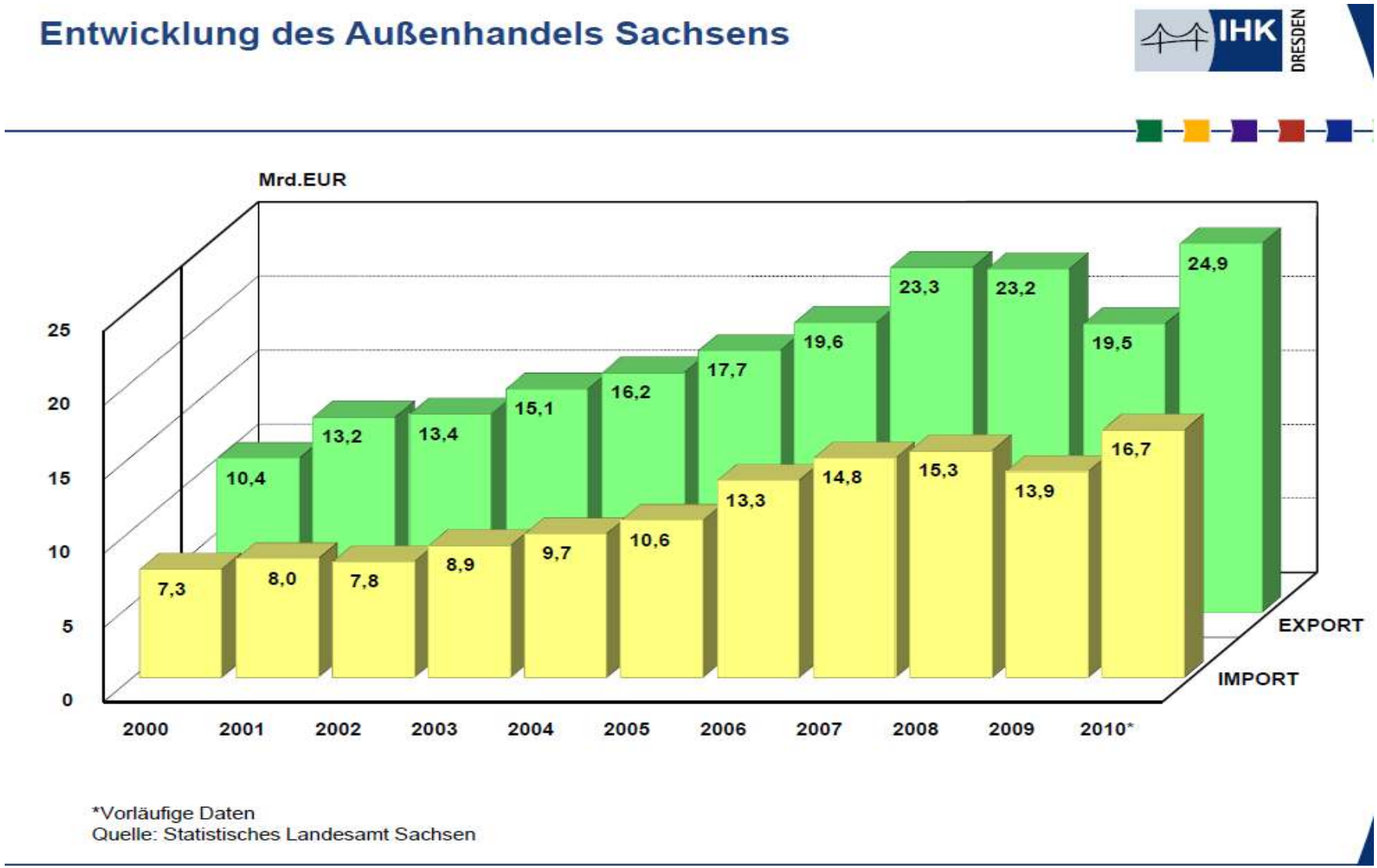


Quelle: Statistisches Landesamt Sachsen

Saxony- showcase of diffusion and R&D

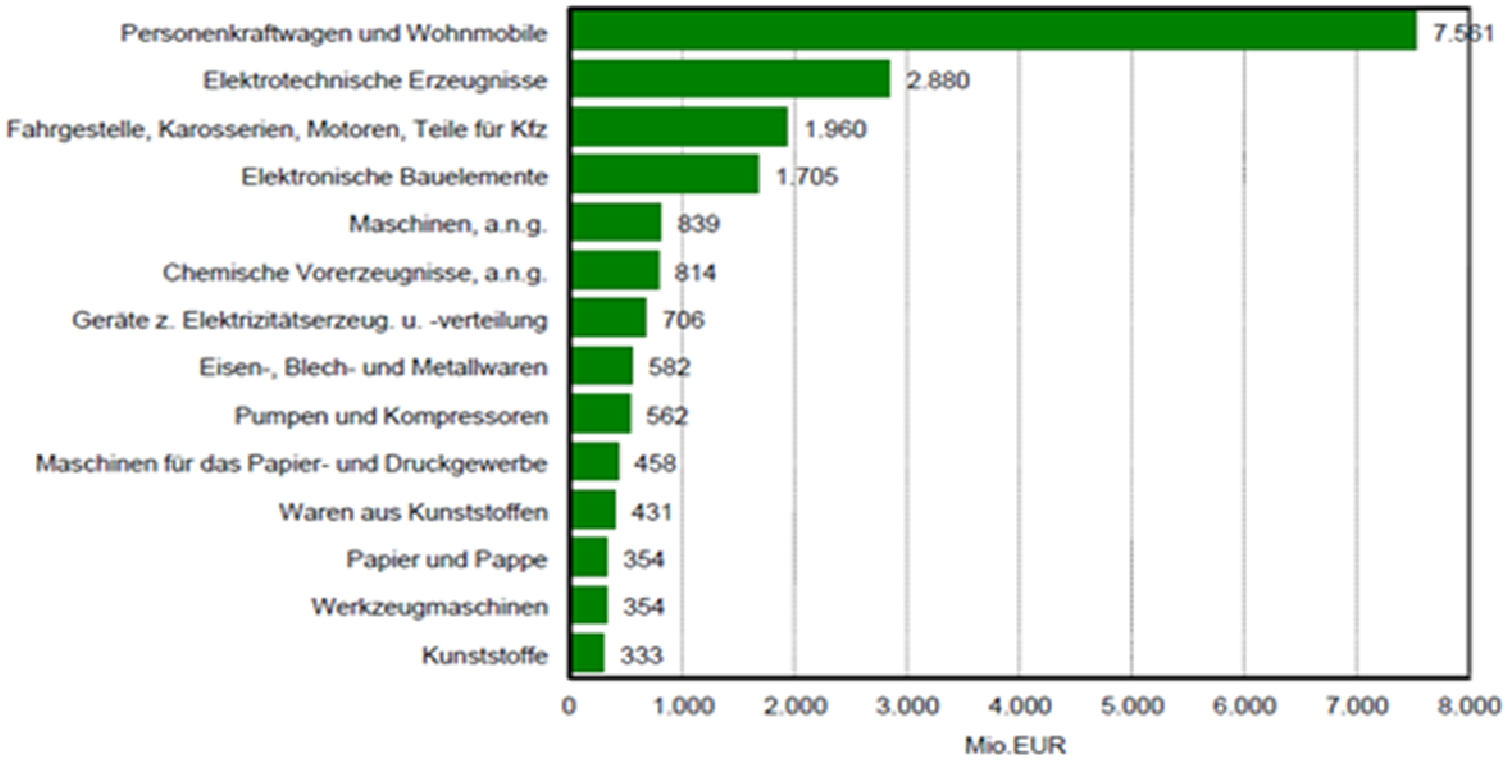
- If we look at the economic performance of one of the highest industrialized countries in East Germany, Sachsen, the dynamism of change and development which occurred during the last ten years becomes visible.
- Saxony's engines of economic growth are based on high quality industrial products, the fusion of technology with knowledge and a highly competent and motivated pro-business orientation of the regional government.
- Amazingly enough, Saxony managed to integrate its productive sectors where SME's are predominant, fully into the world economy.

Foreign trade 2000-2010
Saxony



Export of Saxony, product groups 2010

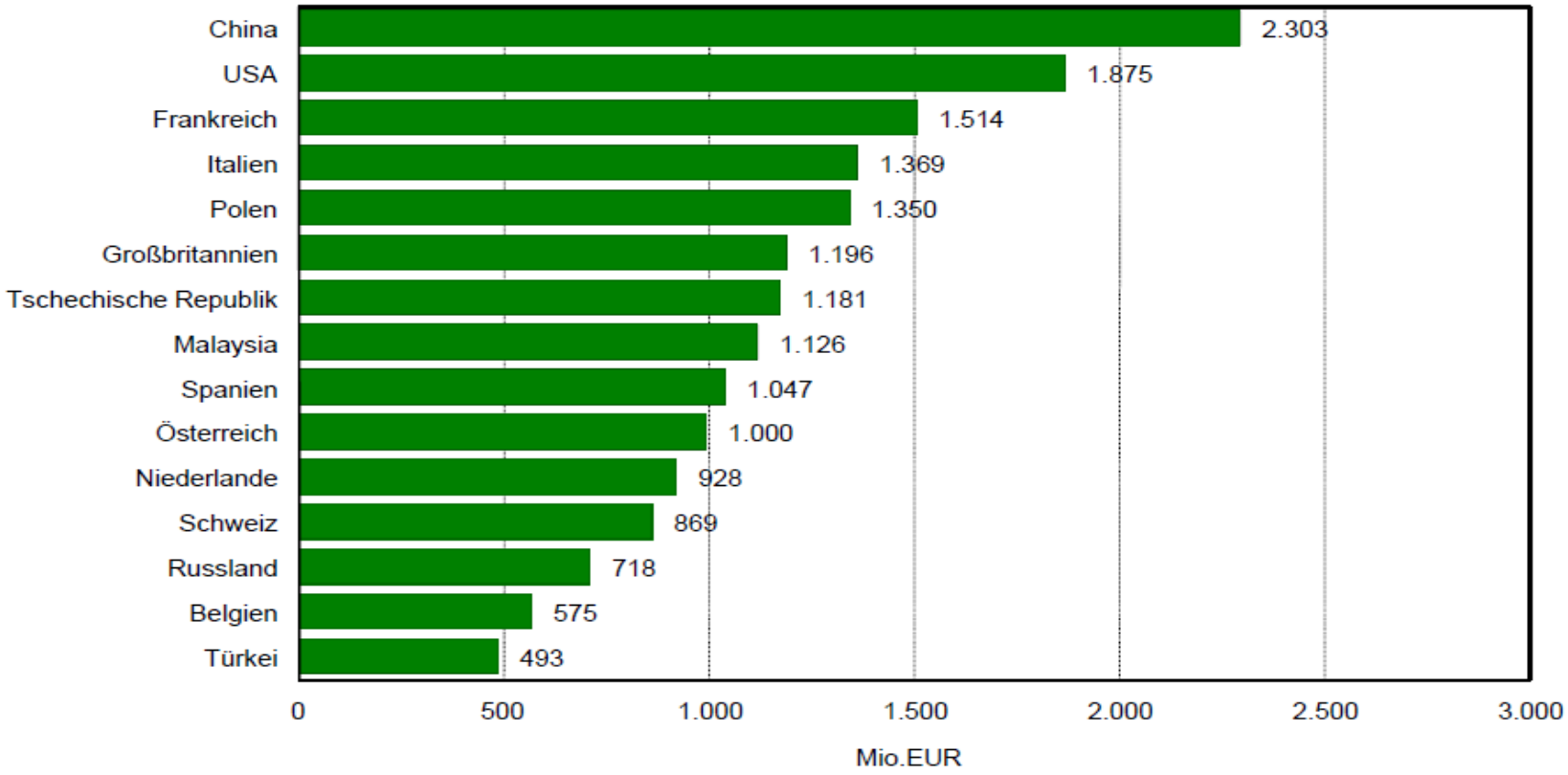
Export Sachsens 2010* nach ausgewählten Warengruppen



* Vorläufige Daten
Quelle: Statistisches Landesamt Sachsen

Exports to selected countries 2010

Export Sachsens 2010* nach ausgewählten Ländern



* Vorläufige Daten
Quelle: Statistisches Landesamt Sachsen

The case of NRW

- Methods, concepts and tools for restructuring East Germany were tested in economic depressed areas of West Germany since the 1970s. In this context, the ZIM-Initiative of North-Rhine Westphalia/NRW needs to be mentioned.
- More than thirty years ago the aim was to transform the coal, iron and steel based Ruhr area in North-Rhine Westphalia into a modern technology region. The process is not completed yet, simply because foreign competition did not stop. Therefore, successful completed projects were often offset by new challenges.
- However, as in the case of East Germany, nowadays NRW cannot be compared with the country 30 years back.

Outlook and a promising recommendation

- The German case, the European model of restructuring and development rests on conditions which are very specific for parts of the Northern hemisphere. Development is based on networks of actors which are integrated but not dominated by state functions, emanating from an “enabling state”.
- However other development strategies, the one’s of the Pacific-Rim point to the centrality of the state as an engine, coordinator of modernization.
- Regardless the institutional-political setting, there are some common features between the enabling and the central state approach. They determine chances of success.

Pre-conditions for catching up and development

- A business orientation of the administrative elites
- A non- corrupt, highly educated cohort of motivated and efficient administrative cadres devoted to national interests and the welfare of citizens
- A functioning system of law and arbitrage
- A high degree of self-government on regional and community levels
- A skilled work force
- A developed physical and cultural infrastructure
- A maximum of openness to attract across the border contacts and communication between R&D centers, universities and social support groups
- Interlinkages between educational, industrial and technological policies.

Aims and strategies

- There is a stringent need to discus and evaluate restructuring and modernisation goals on a sector by sector basis.
- To define such aims will give answers to the use of strategies.
- The two main questions are: what should and will be possible to achieve by one's own means or what must be done in cooperation with foreign expertise and corporate presence, i.e. joint ventures, licenses etc .
- The need to mobilize indigenous resources for technological and innovative development remains in either strategy of highest priority.

A Russian show case: Industrial cluster Kaluga

- Many of the above mentioned preconditions for development were made operative in the case of Kaluga:
- A pro-business attitude of the rgional government
- Pragmatism and institutional assistance to solve problems from the regional government
- Energetic efforts to attract FDI‘s via reduced taxes; instead of 24% nationwide in Kaluga only 6,5%

- Long term institutional based strategies for sustainable development
  - Creation of up to 10,000 jobs
  - Training of efficient workers

- Cluster formation for automotive and car components production creates imitative behaviour or follower effects on other car manufacturers. PSA Peugeot, Citroen, Mitsubishi, Volvo will build cars there too, eventually. Delivery facilities will follow, universities and training centers for engineering and production purposes will open and upgrade.
- This leads to spill-over effects on other industrial groupsTechnoparks for Nestlé , russian corp. Kraftway Computer, Samsung produces soon Plasma-TVs, SAB Miller brewing beer, the finnish corp. Stora Enso works in wood, John Deere will build soon Traktors.

German-Russian R&D Research Cooperation: Kaluga

- **Russian-German Cooperation projects of the Ministry of Environment (BMU-Förderprogramms „Energetische Biomassenutzung“ auf der TerraTec / enertec)**
- Nizhny – Novgorod, Kaluga, Orjol and Kazan for use of bioenergy in Russia BiNeRu
- Development of methods for Biomasses- Potenzialanalyse
- Basis for regional planning of Biomasses
- • Building a network of knowledge with Russian Regions
- • Analytical Data for the implementation of planning regional aims.

Kaluga

- Partner institutions:
- • Coordination: Deutsches BiomasseForschungsZentrum (DBFZ)
- • Partner: Technische Hochschule Wildau [FH], Forschungsgruppe
- Transport Logistics
- • Contract Parner: Europäisches Energie- und Umweltforum e.V.
- (EEUF)

No alternative to development

- Modernization, to state a simple truth , is nowadays more difficult than 30 years ago when the new technologies started to penetrate industrial sectors and cascaded through national economies, creating new products, revolutionizing the organization of industrial production and eliminating old industrial structures at the same time.
- The old world, when a handful of European, American and Asian states ruled and dominated the world market, is over for sure. Former industrial threshold countries, like China, India, Brazil, Indonesia or South Africa have entered the world market and competing fiercely with the Anglo-Saxon and continental European economies.
- Only those countries will stand a chance to survive resulting cut-throat competition which move up the technology ladder and constantly improve the quality of their products under clean and environmentally conditions which embrace acceptable social and human standards.