

**Ignacy H. Chrzanowski\***

## **TRANSPORT ECONOMICS – FROM ORTHODOXY TO PRAGMATISM**

An address to the Faculty of Management and Economics of Service  
University of Szczecin – on the occasion of Professor H. Bronk’s Golden Jubilee

The paper constitutes a tribute to Professor Hubert Bronk’s golden jubilee as an academic who throughout his whole career has been attached to the higher education institutions in Szczecin, and in particular to the University of Szczecin and its predecessors.

The article focuses on one specific scientific discipline Professor Bronk was involved in, i.e. transport economics. It briefly reviews the evolution of transport economics and its principle field of analysis, with emphasis on its transformation in the era of globalization and technological change.

**Keywords:** transport economics, cost, pricing, competition, globalization

### **Introduction**

It is the greatest honour for me to speak to this Faculty which, incidentally, was also mine in the not-so-distant past. Professor Bronk is not only a good friend of mine but also one of these few remaining academics who witnessed the coming of a new era in the science of economics in Poland, and in transport economics in particular. In fact, Professor Bronk not only witnessed this new era; he actually helped to shape it.

Perhaps somewhat perversely I titled this address **Transport Economics – from Orthodoxy to Pragmatism**. The main rationale behind this approach has

---

\* prof. dr hab. Ignacy Chrzanowski – Wyższa Szkoła Integracji Europejskiej w Szczecinie.

been the will to emphasize the enormity of the effort put by the Polish academia and business alike to develop a new approach to this extremely important sector of the nation's economy and to turn it into a vibrant business which has greatly contributed to the modernization of Poland's economic life. From this perspective it has undoubtedly been a success.

A Golden Jubilee of research work, like the one Professor Bronk is celebrating today, is a great opportunity to look back at some of the main issues of this scientific discipline, viz. transport economics of which Professor Bronk is one of the most prominent representatives. Let me use this opportunity to share with this distinguished forum some of my experience of many years of direct involvement in this sector, both at the national and international level. By some strange twist of fate I have had a chance to be involved in transport-related matters for 47 years which makes me a youngster compared to the Professor. This comparison I would not dare anyway. Most of this time I spent overseas so perhaps I might appear somewhat biased in my views in the eyes of this forum. Nonetheless I believe that controversy is one of the prerequisites of progress in any field of scientific research. However, for any errors and/or distortions I am the only one to put a blame upon.

## **1. Transport economics – a “distinct” science that was not**

When both of us, Professor Bronk and myself, with 3 years apart, started our transport-related careers at this Faculty's predecessor which was the Transport Engineering and Economics Faculty of the Technical University of Szczecin, the “distinctiveness” of the discipline of transport economics as a science was in a full swing. Some academics, whose names I will purposely withhold, had even gone so far as to declare that transport was this sector of the national economy that was governed by its own “economic laws”.<sup>1</sup>

---

<sup>1</sup> When I first took my curriculum course in transport economics at the Sopot School of Economics (now part of the University of Gdansk) in the early 1960s, my lecturer – the late Professor B. Kasprówicz – required us to know in detail the 5 “transport laws” introduced into the literature by the German theorist – O. Sax. These “laws”, supported by some other prominent economists in Poland, were subsequently dealt a heavy and destructive blow by one of the most brilliant transport theorist in this country – Professor A. Piskozub. For more on that controversy please refer to: A. Piskozub, *Szczecińskie spotkania i przyjaznie*, in: *65-lecie szczecińskiej szkoły ekonomiki transportu. Przeszłość, teraźniejszość, przyszłość*, Zeszyty Naukowe Uniwersytetu Szczecińskiego No. 628, Szczecin 2010, p. 122. K. Piotrowski, another prominent Polish economist,

However, nobody should be fooled by the name of the Faculty. In fact it was a classical faculty of economics, with one very small “engineering” component which was the chair of road vehicles. It dealt almost exclusively with motor vehicles. The strength of the Faculty was for the large part due to its classical structure of an economics faculty, similar to those existing at many universities or business schools. True, the particular departments at this faculty strongly leaned towards transport-related studies. The Faculty’s structure, apart from the classical chairs of economics, finance, accounting, etc., included the chairs dealing with particular modes of transport. Thus, there was a road transport department, railways department, sea transport department, etc. In-as-much as I remember there had been no aviation department.

Jealously watching over their “distinctiveness” these units pushed hard towards a strong departmentalisation, cutting themselves off a closer routine collaboration with their sister departments. For example there had been little, if any at all, interaction between, for example, sea transport department and the department of road or rail transport, as far as transport to/from major ports was concerned. There was, however, a closer link between seaports and inland water transport as those two sub-sectors were housed in one single unit and managed by the same chair- person.

Such a structure was considered quite a normal order of things. These sectorial “sciences” (referred to as “branch” transport economics”) were so distinct in their curricula that no one would ever dare questioning their *de facto* status. Well, almost no one, because the late director of the Institute of Economic Theory and Social Sciences<sup>2</sup> did so and even dared stepping into the” forbidden city” of transport economics by supervising a series of projects completed on order of the then Ministry of Foreign Trade who, worried by the high transportation costs charged to the Polish exporters and importers, wanted to know how these costs were calculated.

No wonder that the reaction of the modal departments was swift and the professor in question was quickly declared ignorant in transport matters. Foreseeably, he promptly countered by declaring that “transport economists” were in turn ignorant in the field of the economic theory.

---

also broke up with such orthodox views on transport economics in his book: *Czynnik przestrzeni w zarządzaniu gospodarka socjalistyczna*, PWN, Warszawa 1978.

<sup>2</sup> Formerly the Department of Economics.

By no means would I like to be forced into taking a firm position on who was right and who was wrong in this dispute. Rather I would ask a simple but rather a provocative question: *could a pure economic theory suffice to deal with specific issues of the transport business, and conversely, could a narrowly specialized transport expert be a good transport economist taking crucial economic decisions in the field of transportation?* To my mind the answers to both questions are categorical “no”.

My somewhat orthodox faith in the “distinctiveness” of transport economics as a separate field of economics took a severe blow in the mid-1970s when I was asked to review a Polish translation of an excellent book by a British transport specialist – Ian Heggie – titled: *The Economics of Transport Engineering*. Already, the title itself of the Polish version of this book proved that the “transport forum” of Poland’s academia seemed oblivious to the fact that transport economics was something more than just a simple passage from general economic theory to its role of an applied science. In fact it bore a heavy imprint of the “engineering” aspects.<sup>3</sup>

Years later I understood somewhat better why the “classical”, or shall I say “orthodox” definition of transport economics, was to a large extent an exercise in futility. When I was asked to head a team of experts charged with outlining the national transport plan for Malaysia I promptly realized that modal approach was greatly insufficient and practically impossible to implement. The Malaysian transport sector was nothing more but a part of a larger entity, i.e. Malaysia’s national economy, subject to the *very same economic laws regardless the sector of this economy*.

Nonetheless it would be wrong to claim that a general economist, micro- or macro- for that matter, would be able to manage the sector with due expertise. He would need a fair amount of a highly specialized knowledge, particularly in technological matters. Thus, he would need to be involved in transport-related engineering matters. Yet, despite the names of certain centres for transport studies, few of them offer programmes that would cover both economics and transport engineering, let alone presenting them in a close relationship to each other.

---

<sup>3</sup> I. Heggie, *Transport Engineering Economics*, McGraw-Hill 1972. It was published under the Polish title of: *Ekonomika inwestycji transportowych* by Wydawnictwa Komunikacji i Łączności, Warszawa 1977.

## 2. A tentative definition of transport economics in the post-industrial world

Most scholars would agree that transport economics, similarly to the general economic theory, needs some overhaul at this time of globalization and the changing rules of the game. Not that it is unnecessary but mainly because the conditions carriers, shippers and intermediaries are confronted with have substantially changed over the past few decades. This need is also felt in Poland where the transport business managers complain that graduates of transport schools and institutes do not possess a sufficient background in how the sector operates in real life.

In the traditional market economies this field of economic knowledge is hardly seen as a mere application of the economic theory to the specific sector of the national economy. It is rather seen as something that finds itself at the cross-section of economics and transport engineering. This set-up is shown in Figures 1 and 2.

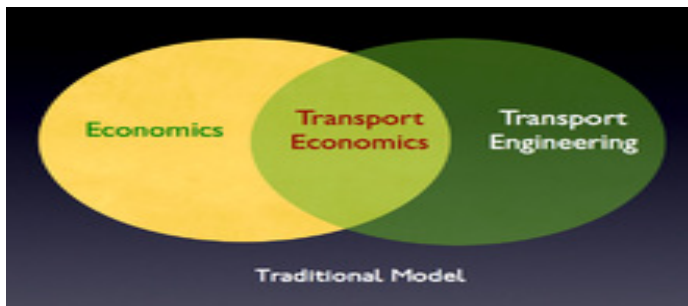


Fig. 1. Transport economics as an interplay between economic theory and transport engineering – traditional approach

Source: Wikibooks, *Transportation Economics. Introduction*, last modified on 28 October 2012.

In a somewhat modified version transport economics is seen as a field that covers both the economic theory and transport engineering.

The scope of coverage is the main difference between the two versions of Figures 1 and 2. While in the first instance *transport economics* is perceived as an amalgamation of what is common for both domains, in the second one it embraces both fields.

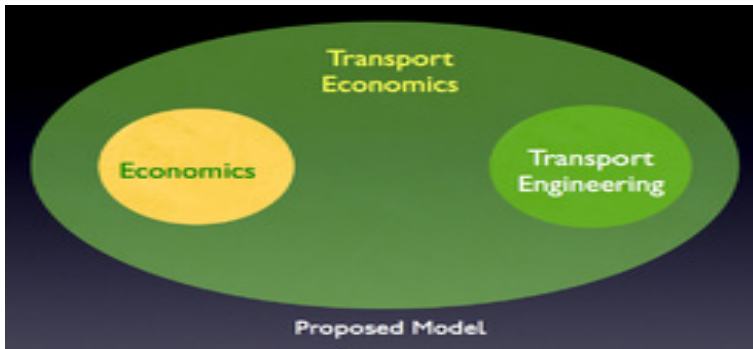


Fig. 2. Transport economics as an interplay between economic theory and transport engineering – modified approach

Source: Wikibooks, *Transportation Economics. Introduction*, last modified on 28 October 2012.

Such an approach can be the cause of disagreement. Does transport economics as defined in case *b* include all the issues covered by the economic theory, and principally microeconomics, and engineering or only those aspects which are strictly relative to transportation? If the latter option is accepted then another question inevitably arises: *what are these issues?*

In my opinion the latter question cannot be answered with due precision. While the scientific rigour would require that what is true for general economic theory must also be true for its applied version, it would be impractical to consider all the aspects of this general theory in the case of a particular applied economics, i.e. transport economics for that matter. There would always be some specificity, shall one say *distinctiveness*, of a particular segment of the economy that would differentiate it from all the other segments. For example, labour cost structure would be different in agriculture as opposed to construction industry and the latter one would differ from, let us say, shipping or aviation. However, in each and every field of economic activity the concept of marginal or opportunity cost for example would remain similar.

What has been stated earlier would be an argument for the transport economics to be considered a distinct and independent field of the economic theory. But that could be regarded as a somewhat demagogical argument because the economic theory is a synthesis of what is observed in real life; millions or billions of particular cases that are synthesized into something referred to as a *general economic theory*.

This discussion seems to have solely an academic credit. It means little in practical terms.<sup>4</sup> It is symptomatic that some leading centres that deal with transportation have gone as far as to deny transport economics its decades-long significance and simply removed this discipline from their curricula. This is the case of the Canadian Institute of Traffic and Transportation (CITT) which for more than half a century belonged to the leaders in transport related studies and research.<sup>5</sup>

In its recent initiative CITT has moved away from its classical certification practice based on a traditional perception of transport economics and replaced it with a new course that is titled: *Economic Influences on Logistics*. The main purpose of this new course is to help students relate economic forces to costing, pricing and operating logistics within a business enterprise. Learners are expected to gain a deeper understanding of macroeconomic trends, government intervention, and how to capitalize on microeconomic levers. And they will know how to use that knowledge to make seemingly uncontrollable influences on supply chain profitability much more predictable—and survivable.

*Economic Influences on Logistics* is an updated version of the CITT course *Transportation Economics*, and is recommended for buyers or suppliers of transportation services or anyone involved in pricing decisions, planning of supply, demand or supply-chain capacity management.<sup>6</sup>

A brief look at the previous fragment indicates a new trend in the very concept of transport economics of which it is nothing more than its modern, pragmatic version. It picks up the very same issues transport economics has been dealing with up to now; costing, pricing, state intervention, and the like, but with the objective to use them in a changed external environment of today's transport industry, i.e. to render it profitable and survivable.

---

<sup>4</sup> There had been a curious discussion among Polish port experts whether a seaport is a “transport link” or a “transport knot”. The proponents of “distinctiveness” of seaports as independent economic entities went so far as to claim that port economics should be treated as a separate segment of transport economics.

<sup>5</sup> More on CITT see: [www.citt.ca/cclp/index](http://www.citt.ca/cclp/index).

<sup>6</sup> There.

Another reputable institution in transportation studies is the University of California – Irvine, and specifically its Institute of Transportation Studies (ITS).<sup>7</sup> The ITS’s curriculum covers the following subjects:<sup>8</sup>

- Intelligent transportation systems (ITS),
- Planning and analysis of transportation systems,
- Transportation systems operation and control,
- Traffic flow modelling and network simulation,
- Network operations research,
- Public and private transit systems analysis,
- Artificial intelligence applications,
- Travel behavior analysis,
- Transportation engineering and safety,
- Transport economics, particularly congestion pricing and toll roads,
- Applications of information technologies in public, private, personal and freight transportation,
- Dynamic and stochastic freight and fleet management,
- Design and operation of logistics systems,
- Intermodal freight transportation,
- Third party logistics.

It is not clear at this juncture whether the ITS’s curriculum covers a course on “pure” transport economics. Regardless, the curriculum focuses on what seems to be the essence of a modern programme in transportation studies.

Some among this forum and beyond may believe that any contemporary course on transport economics, regardless of its formal denomination, should be cleared of issues that have only indirect relationship to economics, such as for instance all the regulatory and legal aspects. This is the opinion of one of the recognized experts on transportation business – Kenneth D. Boyer.<sup>9</sup> He states that legal issues and concerns of regulatory process *are no longer a central part of transportation economics* (emph. I.Ch.) and his book is organized around this paradigm. The analysis of the book covers the modern developments of subsidy-free pricing and stand-alone costing.

---

<sup>7</sup> This acronym can leave room for confusion as it can also stand for: Intelligent Transport Systems (ITS). Incidentally the latter field is also covered by the Irvine centre in its curriculum.

<sup>8</sup> UC Irvine Institute of Transportation Studies. [www.its.uci.edu](http://www.its.uci.edu). Last modified on 22 February 2015.

<sup>9</sup> K.D. Boyer, *Principles of Transportation Economics*, Addison–Wesley 1998.



The shift in focus from the traditional approach in transport economics to economic influences on logistics as promoted by CITT may serve as a good example of what the transportation industry expects from graduates of transportation courses.<sup>10</sup> While it focuses on the Canadian economy it has a more universal reach and is worth quoting in more detail. According to the curriculum the graduates of this course will be able to:

- **Adapt operations** to the unique influences of Canadian infrastructure, transportation, trade agreements and logistics technology, and understand how they affect Canada’s ability to compete globally.
- **Perform cost/benefit analyses**, identifying all costs (direct, indirect, internal and external).
- **Adjust logistics strategies** to changes in the health of the Canadian economy, economic cycles and governmental regulation.
- **Capitalize on economic concepts** such as supply and demand, diminishing returns and economies of scale.
- **Decide between modes of transportation** based on economic characteristics and internal and external factors.
- **Develop pricing strategies** considering inputs such as marginal and average costing, peak load, front haul / back haul pricing, price discrimination, and congestion cost pricing.
- Adjust to early signs of changes in supply and demand across modes and adjust modes to **avoid cost increases and delays**.

These research objectives to a large extent resemble those included in any course of transport economics. However, a shift towards a more pragmatic approach should be duly noted. This is understandable. As far as the industry’s needs are concerned nowadays it is not a perfect knowledge of the transport sector’s characteristics or description of its components but the knowledge of how the industry should operate to achieve its goals. The latter are not attainable exclusively with the focus on the theoretical aspects of the business but on its market activities.

Thus transport economics should evolve towards practicality rather than formal rigour. This does not mean, however, that a transport specialist could be ignorant of the economic theory, the same way a dentist could be ignorant of the basics of human anatomy. On the contrary, he must be familiar with these

---

<sup>10</sup> *Economic Influences on Logistics...*

basics. However, the knowledge of economic theory should be commensurate with the principle objective which is efficiency and effectiveness of the business of transportation, and not turn into a discipline of knowledge that will serve but its own purpose.

### 3. So what should transport economics be about?

Transport economics has traditionally dealt with the allocation of resources within the transport sector.<sup>11</sup> This primary goal of this scientific discipline still stands because a proper allocation of resources, irrespective of the field of economic activity, is a necessity with scarcity of economic resources. But unlike any other economic activity, the transport industry has to deal with some additional challenges, amongst which distance and time are of crucial significance.

Despite the unquestionable progress in transportation technology, the cost of transport for the user is on the increase. The business world all too easily forgets that less than a decade ago oil prices reached almost a triple of what a barrel of crude costs today but no one could predict what it will be a decade from now.<sup>12</sup>

Transport economists often speak of the rising transportation costs in absolute terms and how these costs impact on the economy as a whole. Much more rarely do they determine these costs in relative terms, i.e. how much it costs to generate one dollar of GDP (transport intensity). As the world economy becomes increasingly global these costs tend to increase.

The (transport) industry copes with these constraints with the introduction of larger carriers (ships and aircrafts), more efficient technologies, better management of operations, etc. However, there are barriers to that increase as

---

<sup>11</sup> There have been many schools of thought relating to transport economics. Apart from O. Sachs quoted earlier in this paper, J. Meyer thought to be the founder of transport economics in America introduced new approaches to transportation studies. Meyer's classical work: *Techniques of Transportation Planning*. Vol. 1 & 2. The Brooking Institution. Washington 1971 deserves special mention in this context.

<sup>12</sup> Rising fuel costs and inevitably higher transportation costs for producers and consumer of practically all goods could change the course of globalization. For more on the relationship between transport and globalization see *inter alia*: D.G. Janelle, M. Beuthe, *Globalization and Research Issues in Transport*, "Journal of Transport Geography" 1997, Vol. 5, No. 3; D. Hummels, *Transportation Costs and International Trade in the Second Era of Globalization*, "Journal of Economic Perspective" 2007, Vol. 21, No. 3; L. Baier, J.N. Bergstrand, *The Growth of World Trade: Transport Costs and Income Similarity*, "Journal of International Economics" 2001, No. 53 (1); D.S. Jacks, K. Pendakour, *Global Trade and the Maritime Transport Revolution*, Simon Fraser University. Vancouver 2007, to quote just a few.

these huge ships can enter a limited number of ports and fewer airports can serve the largest planes in operation. Consequently, at some point of time in the future, transportation costs may become prohibitively high and the world trade patterns may change as a result.

In the light of the above trends, transport economics as we know it now needs to change its focus. No matter how we define it, transport economics will evolve into a discipline that will have to deal with challenges of a rapidly changing world; increasing competition not only between carriers and modes of transport but between whole transport systems, both nationally and internationally. This is already evident within the European Union's economic space but also elsewhere.

What matters today in business activity, and the transport sector is no exception to this rule, is the fact that research, education and training should be more attentive to the needs of the industry in question, viz. transport industry in our case. Multiplication of programmes and courses will not solve the real issues the business environment is confronted with. That objective has yet to be achieved.

On the other hand, business world has always been open to innovative solutions; technological, administrative and managerial, that the academia could propose. And this bi-directional relationship should be the focus of a modern transport economics regardless the name it will be labelled with.

### **Concluding remarks**

This short essay is hardly a basis for far-reaching conclusions. It was not meant as such but as a modest contribution to the discussion on the future of transport economics in the era of globalization and technological change. This Conference is an excellent occasion for such a discussion.

Transport economics is no longer what it was half a century ago when Professor Bronk and his peers were just starting their careers. For Professor Bronk and many others it has been a period of intellectual challenge, a passage from an orthodox approach<sup>13</sup> to practicality. He should be commended for his resilience and courage to have faced this challenge.

---

<sup>13</sup> An entry in the Soviet Encyclopaedia defines transport economics the following way... "the branch of economic science that studies patterns in the development and in the operations of transportation, which is regarded as a distinct sphere of material production"; *The Great Soviet Encyclopedia*, Moscow 1979.

## Bibliography

- Baier L., Bergstrand J.N., *The Growth of World Trade: Transport Costs and Income Similarity*, "Journal of International Economics" 2001, No. 53 (1).
- Boyer K.D., *Principles of Transportation Economics*, Addison–Wesley 1998.
- Economic Influences on Logistics*, CITT; www.citt.ca/cclp/index.
- Heggie I., *Transport Engineering Economics*, McGraw-Hill 1972.
- Hummels D., *Transportation Costs and International Trade in the Second Era of Globalization*, "Journal of Economic Perspective" 2007, Vol. 21, No. 3.
- Jacks D.S., Pendakour K., *Global Trade and the Maritime Transport Revolution*, Simon Fraser University. Vancouver 2007.
- Janelle D.G., Beuthe M., *Globalization and Research Issues in Transport*, "Journal of Transport Geography" 1997, Vol. 5, No. 3.
- Meyer J.R., *Techniques of Transportation Planning*, Vol. 1&2, The Brooking Institution, Washington 1971.
- Piotrowski K., *Czynnik przestrzeni w zarządzaniu gospodarką socjalistyczną*, PWN, Warsaw 1978.
- Piskozub A., *Szczecińskie spotkania i przyjaźnie*, in: *65-lecie szczecińskiej szkoły ekonomiki transportu. Przeszość, teraźniejszość, przyszłość*, Zeszyty Naukowe Uniwersytetu Szczecińskiego nr 628, Szczecin 2010.
- The Great Soviet Encyclopedia*, Moscow 1979.
- Wikibooks, *Transportation Economics. Introduction*, last modified on 28 October 2012.

## EKONOMIKA TRANSPORTU – OD ORTODOKSJI DO PRAGMATYZMU

### Streszczenie

Artykuł napisany został z okazji 50-lecia pracy naukowej Profesora dr. hab. inż. Huberta Bronka. Jubilat jest nieprzerwanie związany ze szczecińskim środowiskiem ekonomistów transportu. Jako jeden z nielicznych pracowników nauki ciągle aktywnych zawodowo miał okazje śledzić ewolucje tej dyscypliny; od głębokiej ortodoksji wzorowanej na modelu praktykowanym w b. ZSRR poprzez okres transformacji systemowej po czerwcu 1989 roku aż po obecny etap zdominowany przez niezwykle szeroki wachlarz zagadnień związanych z funkcjonowaniem łańcuchów logistycznych.

**Słowa kluczowe:** ekonomika transportu, teoria ekonomii, logistyka, inżynieria transportu