GETTING PRICES RIGHT

Results from the transport research programme

EUROPEAN COMMISSION

This brochure was produced by the EXTRA consortium for DG Energy and Transport and represents the consortium's views on research into transport pricing. These views have not been adopted or in any way approved by the Commission and should not be relied upon as a statement of the Commission's or DG Energy and Transport's views. The European Commission does not guarantee the accuracy of the data included in this brochure, nor does it accept responsibility for any use made thereof.

Additional information on the transport research programme is available on the Internet. The programme's Knowledge Centre (**http://europa.eu.int/comm/transport/extra/home.html**) provides:

- structured guides to the results and projects for particular topics;
- summaries and final reports of individual projects;
- access to project web sites and other contact details.

References to some projects are included in this brochure, to help the reader access further information quickly through the Knowledge Centre.

Information on the wider transport activities of the European Union is also available on the Internet. It can be accessed through the Europa server (**http://europa.eu.int/comm/dgs/energy_transport/index_en.html**).

Manuscript completed in July 2001.
Luxembourg: Office for Official Publications of the European Communities, 2001
ISBN 92-894-1549-5

Printed in Belgium.

THE NEED FOR RESEARCH

In this brochure, discover how research is contributing to the reform of pricing policy, and identify topics worth investigating further on the web.

Aside from the huge benefits to users and the economy as a whole, transport generates unwanted side effects. These include congestion, accidents, air pollution, global warming and noise. The most efficient way of controlling such effects is to charge users for the resulting costs to society[1]. This would mean a radical reform of pricing in the transport sector. Through its transport research programme[2], the European Union has targeted a range of actions to help policy-makers implement this approach.

This brochure highlights the most significant results. Its purpose is to raise awareness of the information and decision support

© EKA

that is now available, and to encourage readers to obtain further details through a web-based Knowledge Centre (at **http://europa.eu.int/comm/transport/extra/home.html**).

The challenge: how to implement pricing in practice

In the mid-1990s there was no consensus on how to implement pricing reform. Key issues included:

- Can the principle of charging for social costs be put into practice?
- What are the most effective pricing instruments in different situations?
- How will charges change?
- What effects will this have on transport demand, financing of infrastructure, the environment, the economy and society?
- What can be done to ensure political and public acceptance?

The transport research programme has played a central role in providing answers to these questions. It has developed guidelines and tools to support the introduction of new forms of pricing, identified the most promising solutions, and demonstrated their likely impacts.

The transport research programme has played a central role in facilitating a fairer and more efficient approach to charging for transport in Europe.

KEY RESULTS

Research has taken the reform of transport pricing closer to reality. Some major conclusions are described in this section.

Near-optimal charges can be implemented in practice

In principle, transport pricing should reflect "marginal social costs", charging users for the additional costs caused by their use of infrastructure, including externalities such as congestion and environmental damage. Research has shown that this concept can be translated into practical pricing or taxation measures using existing technology. Moreover, simple "second best" approaches such as cordon tolls for entering a congested area can achieve nearly as much as a theoretically optimal solution. The major trend will be a move to more variable charges, differentiated between peak and off-peak periods and levied at the point of use.

Simple measures are often sufficient [3]

Modelling studies have estimated the societal benefits of pricing reform for Amsterdam, Athens, Brussels, Dublin and London. By removing subsidies to parking (such as free parking at shops and offices) and introducing a simple cordon toll for access to the congested central area, 60-80% of the theoretically attainable benefits could be realised.

© Eureka Slide

Charges can take account of congestion, pollution and accidents

The transport research programme has drawn together the available knowledge on how to determine the costs of transport activities, particularly the monetary values of externalities. The work concluded that enough knowledge exists to launch pricing reform, even though further research will be needed to fill some gaps and reduce uncertainties. Practical guidelines have been provided on the methods for calculating costs, and these methods have been demonstrated in site-specific evaluations. In urban areas, congestion is becoming the main problem and can represent 90% of all external costs (particularly during peak periods).

Monetary values for intangibles [4]

Methods for estimating the costs of transport have been demonstrated for the Milan–Frankfurt and London–Lille routes. The level of external costs depends strongly on the characteristics of the various sections of each route, such as the local population density and the power plant used to generate electricity for the trains. For example, external costs per 1000 passenger-kilometres varied for rail between 0.8 and 8 euro, and for road between 24 and 75 euro in these two corridors. On the Frankfurt–Milan route, external costs per tonne-kilometre were ten times higher for road freight than for rail.

Pricing reform will benefit society as a whole

Estimates have been made of the benefits to society from pricing reform. There are overall gains in welfare, less time is wasted in congestion, there will be fewer accidents and the quality of the environment will improve. The transport system will work more efficiently, requiring fewer subsidies to public transport. However, the impacts will not be uniformly distributed – some will pay more and some will pay less, depending on the context. For example, charges for using cars in congested cities are likely to increase, while price reductions may be appropriate on inter-urban routes and in rural areas.

© Eureka Slide, Wang-Mo

Societal benefits of pricing reform[5]

Modelling results for major cities indicate that the local population could benefit from pricing measures by up to 400 euro per capita, particularly if the revenues are returned to people in a lump sum or by reducing taxes on labour. Optimal pricing could reduce transport volumes in the urban area by 7-14%, improving traffic speeds by 30-70% in peak periods. However, charges for urban car use would more than double in many cases.

© UITP, RATP

New patterns of charging will change travel behaviour

Small-scale demonstration projects have shown that pricing measures are effective in changing people's behaviour and travel patterns. The changes need not be dramatic to have a noticeable effect on the traffic conditions. Some transfer onto public transport can be achieved, but in general car users change the timing, route or destination of their trip more readily than the mode of transport used.

Effects of road pricing[6]

The effects of road pricing measures have been demonstrated in several urban areas. In Trondheim, charging for road use during peak periods according to the level of congestion reduced traffic levels by more than 10%. This was mainly due to drivers changing their time of travel, with a smaller decrease in the total number of trips due to trip suppression or modal shift.

In Bristol, 15-20% reductions in daily car travel could be largely attributed to drivers switching to public transport – particularly as a result of special incentives during periods of poor air quality. Nevertheless, the overall conclusion is that drivers tend to travel at different times or by different routes before considering switching to public transport.

© Eureka Slide, Prayez

Pricing reform can be made acceptable

One of the major barriers to radical changes in prices could be political and public non-acceptance. Through extensive surveys, the transport research programme has identified ways of making new charging schemes more acceptable. For example, the revenue from charges should be earmarked for the benefit of the local population, with increased investment in public transport being a popular choice. Effective marketing and consultation is also essential.

Meeting consumer objections[7]

Around 6000 people were surveyed about the reform of transport pricing. Public acceptance of new pricing measures is low, particularly among motorists, even though pricing is perceived to be an effective tool. To increase acceptability, the reform of pricing should be staggered, starting with simple systems with low charge levels. In addition:

- The revenue should be earmarked for public transport, or returned to the local population in some other way.
- Compensatory measures should be considered for social groups which are disadvantaged by the pricing scheme.
- Evidence that pricing measures have been effective in solving transport-related problems should be provided.

Research results are informing policy

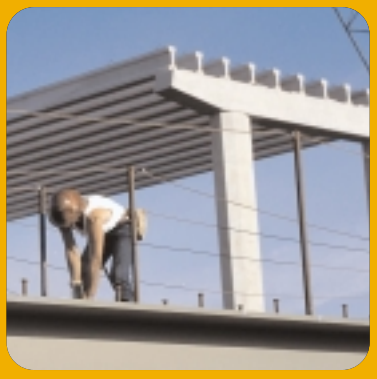
The transport research programme has played a central role in evaluating the potential for optimising prices. Through networking activities, a consensus is emerging on the implications of the wide range of research on pricing, and good practice has been identified. Needs for further studies have been defined – these include a more detailed look at the practical implementation of pricing across the modes, and at the links between pricing and the financing of infrastructure investments.

© Eureka Slide, Red Point (RLH)

Building consensus on pricing[8]

A framework has been provided for information exchange between the large number of research projects on transport pricing. This has facilitated a dialogue with Member States and other stakeholders, and has sought to build consensus on the research results. The findings have been translated into policy recommendations for European, national and local levels. They have also made a major input to EU policy development, for instance through a high-level group on transport infrastructure charging. This interaction is continuing through a thematic network.

AREAS OF RESEARCH



The aim of research on transport pricing has been to show that pricing reform is both practical and effective. This has included:

- evaluating the typical impacts of alternative strategies;
- providing guidelines on their implementation;
- identifying legislative and market barriers.

The research has focused on six main issues:

How to put new charging concepts into practice

Identifying strategies to implement the principle of marginal cost pricing in different contexts.

How to estimate the monetary value of indirect costs

Providing guidance on the quantification of impacts such as congestion, pollution, global warming, accidents and infrastructure wear and tear.

How user costs could change

Quantifying the increases and decreases in charges that would result from more efficient pricing.

How travel behaviour could change

Demonstrating and analysing the effects on transport demand, travel patterns and modal choice.

How to increase political and public acceptability

Determining stakeholder views and the implications for successful introduction of new pricing schemes.

How to relate pricing to financing

Identifying ways of financing transport systems that bridge the gap between pricing at marginal cost and recovering total costs.

NEW CHARGING CONCEPTS
HOW TO IMPLEMENT THEM?

The current system of charging for transport is inefficient, often being driven by general tax purposes and the recovery of infrastructure costs rather than making the user pay the real costs. The most obvious example here is the failure to differentiate charges between peak and off-peak periods, so that no account is taken of the associated variations in congestion, exhaust emissions and accidents.

The concept of charging at marginal social cost should correct this problem. The transport research programme has studied how the concept can be implemented, modelling the likely results in a range of cities and transport corridors. This work has helped to quantify the major distortions in current charging practices and has identified the scale of benefit from practical corrective actions.

© EKA


© EKA

Optimisation of pricing policies[3]

Estimation of economic costs and benefits has shown the relative merits of alternative approaches to charging for transport. The results indicate that efficient pricing need not be complicated. Cordon pricing plus parking charges give 60-80% of the attainable benefits in urban areas, and congestion pricing achieves a similar result for inter-urban highways. For urban car transport, prices should be increased by 100-250% in the peak, with smaller increases off-peak, while current charging levels are more or less correct for inter-urban car travel in the off-peak period. Efficient pricing may reduce or increase fares for public transport, depending on the city context and the current level of subsidies, and road freight charges are likely to increase.

Charges on major transport corridors[9]

Case studies have shown the effects of pricing reform for five specific corridors. They have also demonstrated that a practical methodology to calculate marginal social cost for all modes does exist, even though many of the valuations remain somewhat uncertain. The results reinforce the conclusion that the effects of moving to a more efficient pricing system are likely to be diverse, depending on the national context and the current level of prices and subsidies.
For example, while there is generally a case for lower prices for public transport (bus, rail and air), in some places existing subsidies are already excessive.

Pricing reform for urban transport[10]

Results from modelling for Edinburgh, Helsinki and Oslo suggest that optimal reform of pricing would benefit the urban population by 200-400 euro per capita each year. A major part of this gain would result from the effective use of the revenues, for instance allowing a reduction in labour taxes. A policy package suitable for immediate implementation would achieve 30-75% of the theoretically attainable benefits. This would increase to 75-90% after institutional reform, for example to permit cordon tolls to be added to higher parking charges and fuel taxes.

Case studies and surveys in five cities indicated that the legal and institutional frameworks required to implement marginal cost-based pricing for urban transport have, so far, not been put in place. For example, these are different to the frameworks needed for road pricing on inter-urban highways.

© UITP, H. Delleuse

INDIRECT COSTS
HOW TO VALUE THEM?

Pricing reform requires the calculation of the social or indirect costs of transport, as well as the direct costs of infrastructure use. Previous EU-funded research has studied the health and other impacts of air pollution and noise from stationary and transport sources, and has compiled robust methods for monetary valuation of the damage[11].
The transport research programme has now shown how these methods can be used to determine prices for transport in a variety of situations.

© Eureka Slide

Case study calculations[4]


© Eureka Slide, Photo Houet

The costs of transport have been estimated for three multi-modal corridors: Frankfurt–Milan, London–Lille and Munich–Patras. These costs include direct operating costs, the value of travel time, air pollution effects, climate change, traffic noise, accidents, and infrastructure costs and subsidies. The absolute value and relative importance of each type of cost was shown to vary significantly between mode, vehicle type, fuel type and specific sections of each corridor. For example, on the London–Lille route, air pollutants contribute half the external costs from road passenger transport, whereas noise is the dominant factor for road and rail freight and for rail passenger travel. In contrast, on the Frankfurt–Milan route, accidents are the largest single external cost for road passenger transport, and air pollution dominates for road freight.

Practical guidelines for users[12]

Consensus-building activities have found that all of the main external effects (air pollution, global warming, congestion, accidents etc.) can be taken into account in pricing structures, even though some uncertainty exists in their estimation. Specific evaluation methods have been recommended for particular impacts, and a handbook has been produced giving practical guidelines on estimating the costs of urban mobility and selecting ways to finance it. The handbook includes advice on the use of simple pricing solutions (such as parking and cordon charges), according to city characteristics such as size, severity of environmental problems and the financial position of public transport.

USER COSTS
HOW MIGHT THEY CHANGE?

Although efficient pricing is expected to benefit the economy as a whole, more information is needed on the detailed breakdown of the effects. For example, data on the distribution of changes in user costs will be important for policy-makers, allowing them to identify potential sufferers and design mitigating measures where necessary. Research has identified the major trends in costs due to pricing reform, as well as quantifying wider impacts on welfare and equity.

Conclusions on changes in costs[8]

Studies have found that the existing range of pricing policies in EU Member States is so varied that the impacts of marginal cost pricing have to be assessed on a case-by-case basis. The extent and direction of any price changes will depend strongly on current levels of taxation and charging. But as a broad conclusion, pricing reform to reflect social marginal cost would involve:

- a decrease in prices for inter-urban road and rail passenger transport and an increase in the price of urban road travel (particularly for the private car and during periods of peak congestion);
- an increase in prices for both road and rail freight.

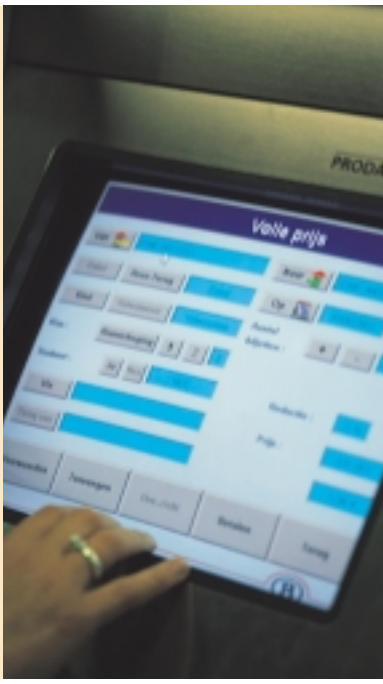
Nevertheless, the aim of pricing reform is not to deter trips that offer a net benefit to society, but rather to discourage trips where the benefit to the individual user is less than the cost to society as a whole.

Modelling the effects of pricing reform[13]

Econometric modelling has shown that implementing marginal cost pricing would be beneficial to society. The welfare gain (money plus time) could be worth around 1% of income to city dwellers, particularly if revenues are used to reduce taxes on labour. Optimal pricing reduces total transport volumes by 7-14% in urban areas, and by about 2% for inter-urban travel. This would allow traffic speeds in cities to increase by 30-70% in peak periods as a result of reduced congestion.

For example, in Amsterdam by 2005, congestion pricing would cut the modal share of private cars in the peak from two-thirds to around one half, in favour of public transport. As a result, the average speed on the roads would increase from 13 to 20 km/h.

Case studies for multi-modal corridors showed that prices for inter-urban passenger travel should be reduced for all modes by 2010. This result is predicated on the tightening of vehicle emissions controls and some expansion of capacity to reduce congestion. Long-distance road freight is generally under-charged, because taxes do not increase sufficiently with vehicle weight and distance travelled. Price increases could be as high as 100%. For rail freight, tariffs may need to increase or decrease, depending on the current level of subsidies on a given route.



© EKA

TRAVEL BEHAVIOUR
HOW WILL IT CHANGE?

A number of research projects have looked at the implementation of specific pricing measures in practice. The aim has been to use small-scale demonstrations and studies of existing schemes to gain more detailed insights into operational issues and user reactions.

For example, efficient pricing will require greater differentiation in charges by time period and area. Research has shown that the major consequence is likely to be travel at different times or by different routes, rather than a change in mode.

Experiences with pricing schemes[14]

More than 20 case studies have been completed on pricing innovations, covering both urban and inter-urban transport.

The research showed that road use pricing can change modal split from private car to public transport and Park & Ride, giving city centre traffic reductions of 5-25% (for charge levels of 1-3 euro). Cordon pricing is particularly effective when applied to congested central areas and over peak periods (reducing car trips by up to 25%). Pricing of parking is also effective in restraining car trips, if enforcement is effective.

Integrated payment systems (such as smart cards) have a small impact on modal split on their own (especially for Park & Ride), but more importantly support pricing schemes that are co-ordinated across different transport modes. Zone access control has also been tested – the focus here was on proving the viability of technical implementation to enforcement authorities.

A majority of the case studies were concerned with fighting congestion, for instance on the French motorways. The findings indicate that car users, in particular for leisure trips, re-schedule departure times to off-peak or change routes if price differentials provide an incentive to do so. However, modal shift or a reduction in the overall number of trips is minimal. In Leicester for example, road pricing on an arterial road combined with Park & Ride provoked two reactions. A number of trips were shifted to the bus, while some car drivers avoided the charge by using secondary streets.

Insights from surveys and modelling[15]

Surveys of freight shippers indicated that, when faced with higher prices or traffic problems, they are more willing to increase their own prices or change shipping times than have anything to do with modal transfer. The unwillingness to change mode is largely attributed to bad experience with other transport modes, no matter whether that experience has been directly suffered or just reported by other companies. Moreover, the expected magnitude of price increases in inter-urban transport is not such that it will cause major modal transfers – and there is a lack of non-road alternatives for urban freight. A strong improvement in efficiency and quality from other modes is necessary in parallel for shippers to consider the scale of modal transfers thought desirable to meet policy goals.

Computer models have been developed for passenger and freight transport to simulate mode and route choice for European networks and specific major corridors. These models have been calibrated for selected countries and routes. Case study results indicated that charging road and air passenger transport with emissions-dependent costs would provoke stronger changes in modal split than infrastructure investment, and lead to the development of lower-emission vehicles and aeroplanes.

© EKA

PUBLIC ACCEPTABILITY
HOW TO INCREASE IT?

Acceptability has been identified as a primary obstacle to pricing reform. The reasons behind the opposition are many: the impacts will not be distributed uniformly, the benefits are not obvious to many transport users, and significant changes in daily travel habits might be required for many travellers. The transport research programme has therefore used surveys to look at the acceptability issue in detail and identify policy actions to increase acceptability.

© Eureka Slide, Doumelounksen

Findings from surveys[7]

Survey results indicate that for a pricing strategy to be accepted by the public and by businesses, it should include the following elements:

- The objectives of the strategy have to address the major public concerns over transport problems. This must be evident to those affected by the strategy, and the prices should be seen to relate to the real costs of transport.
- The proposed strategy must be perceived as an effective solution to the problems, for instance based on evidence from pilot applications.
- The revenues must be hypothecated. In general, people want the revenues to be used in the transport sector, especially to cross-subsidise public transport. (However, this may not be appropriate from an economic viewpoint, with a reduction in local taxation being preferable.)
- People must have confidence in the use of the revenues and the protection of privacy.

Therefore new types of measures should be preceded by campaigns to raise awareness of the targeted problems and the effectiveness of the proposed measures. Pricing measures should be introduced in a staggered way, avoiding price shocks, and compensation measures should be considered for disadvantaged groups. Acceptance requires adequate investment in alternative modes of transport, as well as public consultation on the proposed scheme. Experiences from several cities show that acceptance tends to increase after implementation, but this is quite sensitive to the level of charges.

In general, people are against congestion charging, as they see themselves as victims of a non-functioning transport system, whereas pricing to curb environmental damage is accepted as a general principle. On the other hand, there is considerable support for road pricing as a means of financing investment in public transport and infrastructure. Therefore road tolls could be a stepping stone to raising acceptance for congestion charging.

The variations between Member States in methods for evaluating costs and prices were noted as raising problems for acceptability, owing to the effects on market competition – harmonisation of methods across Europe would be valuable in this respect.

Impacts on equity[10]

Modelling studies estimated the variation in the effects of pricing across different income groups in two cities. The impact is relatively small, depending on the way the revenue is recycled into the economy. With respect to equity of access, reductions in trips by private car were calculated to lie between 5 and 30%. Overall, accessibility is reduced, particularly for car users. However, if revenues are used to subsidise public transport services, then accessibility may even be increased for most of the population.

PRICING AND FINANCING
HOW TO RELATE THEM?

Pricing based on marginal social costs will not necessarily cover the total costs of a transport service or mode. On the other hand, marginal cost pricing will lead to surpluses in some situations, notably in congested urban areas. Revenue potential is also a key factor in attracting private finance to complement public funding. Therefore research has been examining the real costs in comparison to the charges and taxes paid by different modes, with the aim of finding efficient ways to cover the gaps and redistribute the surplus revenues.

The financing of urban transport[16]

A handbook has been prepared giving practical guidelines on the pricing and financing of urban transport. The relative merits of new mechanisms such as private finance, value capture (e.g. taxing land values that benefit from transport infrastructure investment) and cross funding (e.g. from private to public transport) are explained.

It is concluded that there will be many cases where marginal cost pricing leaves a need for additional funding. In most cases a mix of financing measures will be required, and advice is given on when each mechanism is most likely to be appropriate. Public funding is seen as having many attractions, but may not provide adequate resources for investment, in which case a mix of private sector funding and simple approaches to value capture are recommended.

In related modelling work, it was found that optimal transport strategies for a number of cities could be funded by road pricing or increased parking charges with no net additional financial support. In other cities, the optimal strategy would require greater funding. Where cities face constraints on capital investment, private sector finance could be used, but then the optimal strategy is likely to be constrained, resulting in lower social benefits. In this case, an alternative is to raise additional finance through value capture. However, the modelling suggested that value capture is beneficial in only a limited range of city situations.

The financing of inter-urban transport[17]

Research suggests that the use of tolls to reduce traffic will be more problematic on inter-urban routes than on urban roads. The dominant response from users is likely to be a diversion to alternative routes rather than a switch to alternative modes or a reduction in the total amount of travel. This would probably be counter-productive in terms of environmental and congestion costs. In addition, it would create a barrier to the use of private finance in the development of road infrastructure, requiring the public sector to take on the financial risk associated with uncertainties in future traffic levels.

CURRENT DEVELOPMENTS IN TRANSPORT RESEARCH

This section highlights some of the current research into transport pricing. Further details are available from the Links section of the web-based Knowledge Centre.

Over the last few years, the transport research programme has provided the theoretical foundation for the introduction of marginal cost pricing. Current research is extending this foundation in the following areas:

- providing a forum for interaction between researchers and policy-makers;
- evaluating the costs of transport in different local and traffic contexts, and also at Member State level;
- determining the socio-economic impacts of pricing policies and the effects on market competition.

In addition, new actions are now focusing on practical implementation, such as the design and testing of pricing schemes and the phasing of the introduction of measures. A related issue is the use of regulation and investment to complement or substitute for economic instruments.

Evaluating costs[18]

To enable prices to be based on the real costs of transport, including external costs, work is needed on the methodology of cost estimation. This is being done both at national level and for European transport corridors, and will provide recommendations on how to apply cost figures from one location or case study in a different context. In addition, pilot accounts are being developed for Member States, showing how costs and revenues for each mode contribute to the overall economics of the transport sector. Actions to deal with market distortions in the freight sector resulting from current taxes and charging systems will be identified.

© UITP

Informing policy[19]

A thematic network is providing a forum for debating the key issues on pricing, as well as facilitating the dissemination and exploitation of research findings. The work will generate five international seminars, peer-reviewed reports and a set of recommendations for an integrated approach to the implementation of pricing reform. The network involves European and national policy-makers, and covers all the transport modes.

Developing implementation strategies[20]

Further lessons on the practical implementation of pricing measures are needed before pricing measures gain the necessary social and political acceptance. Therefore, the Commission is funding a major demonstration project in eight cities, through to the year 2004. This will test a range of road pricing concepts and technologies as part of a wider strategy to combat congestion and improve the environment. In parallel, a thematic network will bring together and disseminate the results from these and other demonstrations, aimed at producing a consensus on the implications for policy.

At the same time, new research will identify the most effective designs for inter-urban road pricing schemes, particularly for heavy vehicles. One important focus will be on the migration path from current charging and financing systems towards the implementation of marginal cost pricing – and this issue will be the subject of a dedicated study covering all the transport modes, both passenger and freight, urban and inter-urban.

Determining impacts[21]

Previous research has highlighted the need to estimate the wider socio-economic and market impacts of policies such as pricing. Several studies are being launched in this area. These will provide:

- methods for evaluating the socio-economic and regional effects of transport policies and investments – covering impacts such as urban regeneration, industrial competitiveness, employment, land-use and accessibility;
- a framework for defining combinations of economic instruments, regulatory and infrastructure measures that simultaneously meet multiple policy objectives such as efficiency and equity.

References

Further information on the following projects can be obtained from the web-based Knowledge Centre.

Other key documents referenced in the brochure are available on the DG Energy and Transport web site (http://europa.eu.int/comm/dgs/energy_transport/index_en.html).

1. White Paper "European transport policy for 2010: time to decide", COM(2001)370

2. The transport research programme is part of the fourth framework programme for Community activities in the field of research, technological development and demonstration for the period 1994 to 1998

3. TRENEN II STRAN project

4. QUITS project

5. AFFORD and TRENEN II STRAN projects

6. CONCERT-P project

7. PATS and PRIMA projects

8. CAPRI project

9. PETS project

10. AFFORD project

11. See ExternE project web site: http://externe.jrc.es/

12. CAPRI and FISCUS projects

13. PETS and TRENEN projects

14. CONCERT-P, EUROTOLL and TRANSPRICE projects

15. SOFTICE and STEMM projects

16. FATIMA and FISCUS projects

17. START project

18. UNITE and RECORD-IT projects

19. IMPRINT-EUROPE project

20. CUPID, DESIRE, MC-ICAM and PROGRESS projects

21. IASON, TIPMAC and TRANSECON projects

The programme's Knowledge Centre is available at:

http://europa.eu.int/comm/transport/extra/home.html

It provides:

- structured guides to the results and projects for particular topics;
- summaries and final reports of individual projects;
- access to project web sites and other contact details.

KO-39-01-530-EN-C

Brochures on results from the transport research programme are available for:

1. **Sustainable mobility**
2. **Clean urban transport**
3. **European transport networks**
4. **Single European sky**
5. **Maritime safety**
6. **Freight intermodality**
7. **Getting prices right**
8. **Road safety**
9. **Intelligent transport systems**

OFFICE FOR OFFICIAL PUBLICATIONS
OF THE EUROPEAN COMMUNITIES
L-2985 LUXEMBOURG

ISBN 92-894-1549-5