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Employment, skills and working conditions in transport

Policy summary of interim results

Panayotis Christidis, Elena Navajas Cawood,
Vicenc Pedret Cusco, Paul Vroonhof,
Jarl Schoemaker, Diego Artuso

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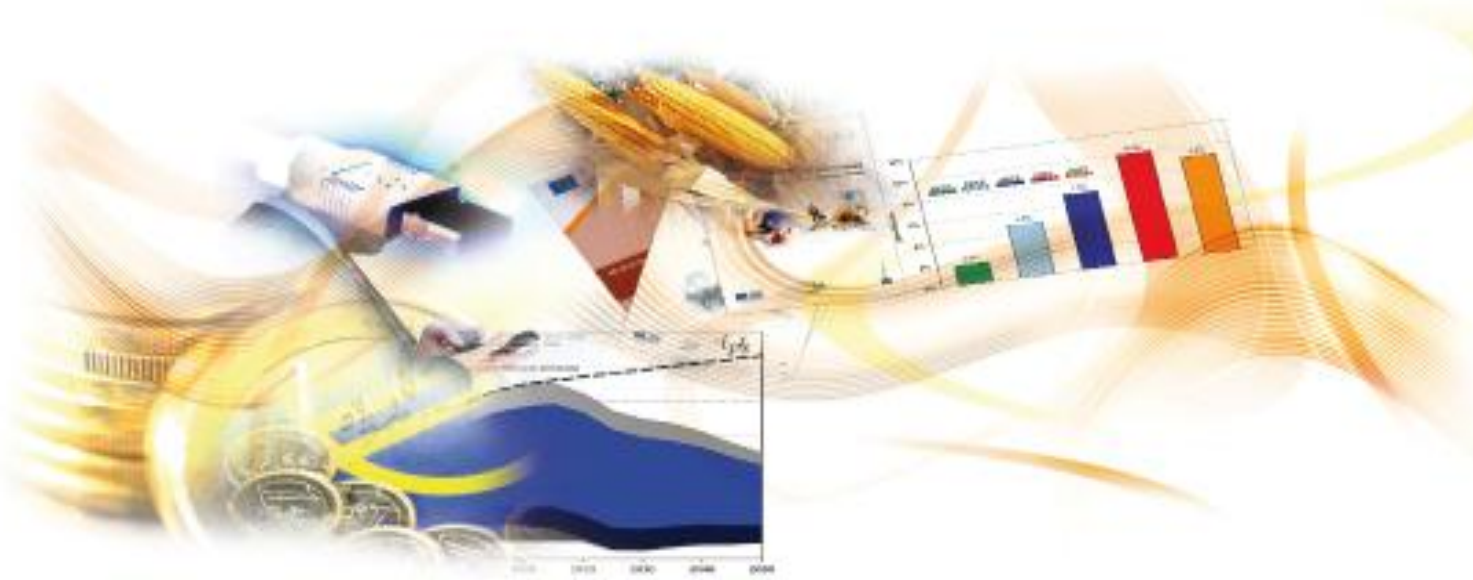

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Joint Research Centre

European Commission
Joint Research Centre
Institute for Prospective Technological Studies

Contact information
Address: Edificio Expo. c/ Inca Garcilaso, 3. E-41092 Seville (Spain)
E-mail: jrc-ipts-secretariat@ec.europa.eu
Tel.: +34 954488318
Fax: +34 954488300

http://ipts.jrc.ec.europa.eu
http://www.jrc.ec.europa.eu

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Preface

As the White Paper "Roadmap to a Single Transport Area"[1] states, market opening needs to go in hand with quality jobs and working conditions within the transport sector. The White Paper also underlines that it will be important to reconcile inside the transport sector both the EU competitiveness policy and the social agenda, based on a well-founded social dialogue. Working conditions, productivity and salaries undergo a long-term parallel evolution, and therefore it is mandatory to address this issue in such a heterogeneous sector, which exhibits very different degrees of capital and labour intensiveness depending on modal and geographical conditions.

Transport faces the same challenges as all sectors of economic activity, with certain sector (and sub-sector) characteristics that make necessary a specific analysis of its employment issues. Demographics, trends in transport and labour demand, availability of skills, working conditions and technological change are six main drivers of change that affect employment in the transport sector significantly.

[1] White Paper "Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system" (COM(2011)144 final of 28 March 2011).

Contents

1 INTRODUCTION

This report provides a summary for policy makers of the interim results of the research activities carried out by the Joint Research Centre (JRC) in support of DG MOVE for the analysis of employment and skills issues in transport. The work addresses the attractiveness of working conditions and the supply of skills in the EU transport sector with recommendations for measures for improving them at EU level.

The project is being carried out through a combination of in-house research in the JRC with the input provided by an external study carried out Panteia/EIM and PwC Italy.

The overall objective of the project is to evaluate:

the quality of work in all transport modes, with respect to, notably, training, certification, working conditions and career development, with a view to creating quality jobs, developing the necessary skills and strengthening the competitiveness of EU transport operators.

In addition, the research activities address a number of specific questions:

- What will be the impact of ageing of the workforce in transport?
- Will there be enough employees with the right skills to replace the ones expected to retire from now to 2020?
- What is the impact of productivity growth in transport?
- How does future labour demand and working conditions in transport compare to that of other sectors?
- Will transport jobs be competitive/ attractive in the future?

The background study by PANTEIA/EIM and PwC Italy has gathered relevant literature and is carrying out consultations (notably with the market agents and social partners), establishes productivity measures, analyses the productive factor mix within the sector, and its dependence on technological progress, with the final scope of studying the relative attractiveness of transport jobs and the adequacy of the current and near future supply of labour and skills to the sector.

The part covered by JRC consists of the quantitative analysis of employment and skills in the transport sector, including a 'labour map' of transport as it is today and a projection of how it may develop in the medium to long term (2015 and 2020 to 2030, depending on the level of detail and model used).

As a result of the demographic trends, population ageing is going to be a key challenge over the next years as large cohorts taking retirement will have to be replaced by younger generations. The challenge for the sector is whether enough employees with the right skills can be attracted to the transport sector given the conditions it offers. From the demand side, transport activity is expected to demonstrate growth, even under pessimistic economic development scenarios. The growth is not expected to be, however, uniform among modes and market segments, creating local/temporal imbalances for some market segments. In addition, growing demand may increase the pressure on a workforce that is

older than the average of the economy and where female workers constitute a small minority (with the exception of air transport in both cases). A main question for the sector is whether it can attract new employees with the needed skills given that the working conditions are (or are perceived to be) harder than in other sectors. At the same time, the prolonged economic crisis in Europe has seriously affected the job market characteristics across all economic sectors and has led to important changes as regards the overall number of jobs, wages and job stability. The need to adapt to technology changes notably in relation to the transition to a more knowledge-intensive sector can represent a barrier that may need public intervention.

Transport is not a typical services sector. Depending on the transport mode considered, labour intensiveness can change significantly. Some of them require large investments, and exhibit capital intensiveness, increasing returns to scale and all the characteristics of natural monopolies, whereas other transportation modes have a cost structure with increasing marginal costs and a free concurrence service market. Needless to say, the labour-demanding responses of each subsector depend, to a great extent, on the transport mode cost structure, as well as on the type of technological progress prevailing.

This study analyses employment in the transport sector from different viewpoints, and by means of a variety of analytical approaches.

2 MAIN FACTORS AND DISCREPANCIES IN THE TRANSPORT LABOUR MARKET

The PESTLE factors (Political, Economic, Social, Technological, Legal, Environmental) describe the context in which the transport labour market is placed. As a starting point, the analysis has identified the following main factors that can influence employment, skills and quality of work in transport:

PESTLE: Political factors

- EU Enlargement, Single Market and Market liberalisation
- Remaining protectionism in some member states and/or transport sectors
- Integration of transport system
- Europe 2020 and ”Flexicurity” ("employment security" vs. "job security")
- Emphasis on decarbonisation and energy security (leads to a modal shift)

PESTLE: Economic factors

- General economic growth and the crisis
- Geopolitical changes and globalisation
- Regional differences in economic development & specialisation
- Heterogenous transport infrastructure and usage levels (incl. congestion)

PESTLE: Social factors

- Demographic development: future demand for passenger services and ageing workforce (less supply of labour)
- High level of unemployment in many EU countries (impact on wages and working conditions, structural unemployment)
- Gender balance in transport labour force
- Increased monitoring of employee performance (ICT based, can lead to perceived pressure and possibly create stress)
- Violence in the public (and impacts on transport employees)
- Organized crime (piracy).
- Increasing liability culture (responsibilities of transport employees)

PESTLE: Technological factors

- Increasing use of IT
- Technological innovations
- Faster and larger transport means
- Intermodality

(leading to efficiency & productivity gains, specialised jobs, more complex job requirements)

PESTLE: Legal factors

- Different social regimes between Member States: (wages, working conditions and social security)
- Different social legislation between transport modes

- Rights and legal regime of non-EU workers
- Safety regulations

PESTLE: Environmental factors
- Sustainability policies (increased job requirements in the transport sector)
- Modal shift, clean power transport, "Eco-driving"

Quantitative discrepancies
We can speak of quantitative discrepancies where there are not enough sufficiently qualified school leavers or job seekers in (a subsector of) the transport sector as a whole (labour shortage) or where there are not enough vacancies to make use of the supply (labour surplus).
- *Current labour shortages/surpluses:* Many transport branches already report serious structural labour shortages, in particular for mobile jobs. As a result of the economic crisis, these shortages are temporarily mitigated.
- *Prognoses labour shortages/surpluses 2020:* In view of the ageing population in Europe and competition among transport branches and companies to attract (young) workers, labour shortages may cause problems for the transport sector in the future. The largest discrepancies are expected for aircraft staff, ship's deck officers and pilots, and drivers of high speed trains. This is in particular cumbersome for the transport sector's development because most of these specific occupations' employment is found in the transport sector itself (by way of comparison: many drivers do not actually work in the transport sector).

Qualitative discrepancies
Qualitative discrepancies occur where there is both sufficient supply of labour and a sufficient number of vacancies, but where the demands and wishes of employees and employers regarding level of qualification, content and organisation of the work diverge.
- *Current skills shortages and deficiencies in training and career opportunities:* Training employees is required in order to meet up with increasing requirements. Training opportunities for employees are limited (especially for low-educated and old workers), but improving.
- *Job quality*: Job quality contributes to the working image of a sector and/or profession and by that to the possibilities to recruit and retain personnel. A distinction can be made between employment and work quality.
- Employment quality: Delocalisation of transport jobs and social regime competition practices occur. To cut costs, pension and early retirement schemes are being restructured. Working times are often irregular and in particular many mobile workers have to cope with regular and (very) long absences from home. Possibilities for part-time work are less than in other sectors.
- Work quality: Work autonomy in transport is relatively low. Problems caused by heavy physical work have been replaced by stress derived from time-pressures and efficiency improvements, thereby shifting from physical to social or psychological problems. Transport is considered a dangerous activity (occurrence of accidents, public violence, organized crime/piracy). Work intensity has increased (due amongst others to increased traffic congestion and the use of 'lean' strategies or increasingly tight scheduled transport services).

3 ANALYSIS OF JOB QUALITY ISSUES IN TRANSPORT

This study uses a multidimensional concept of job quality referring to those aspects of a job that have an impact on the well-being of workers. Given this demarcation of job quality, two broad dimensions of job quality can be distinguished:

- Employment quality: related to the contractual relationship between employer and employee.
- Work quality: related to the material characteristics of the task performed and the environment within which it is performed. It is concerned with the activity of work itself and the conditions under which it takes place.[2]

The following aspects of employment- and job quality can be distinguished:

Employment quality	Work quality
– Remuneration and social benefits – Job flexibility (working hours, working time arrangements and time flexibility) – Job security – Employee participation – Skills development	– Work autonomy – Physical working conditions, health variables and risks of accidents – Psychosocial risk factors – Intensity of work – Meaningfulness of work

Wages on the transport sector as a whole are thought to be lower, on average, than the average in the whole of the economy[3], but when compared according to skill level, jobs in transport have higher wages than comparable professions in industry or services. In part, these wages compensate for the different working conditions of mobile workers or transport employees working atypical hours. Since remuneration is a major factor for the attractiveness of jobs, major differences compared to other sector may cause distortions in the balance between the supply and demand for jobs in certain transport professions. Several stakeholders raise worries concerning the impact that the Internal Transport Market and the deregulation of the transport sectors may have on mobile workers. The possibility of delocalisation of transport jobs may create a higher downward social policy regime competition than in other sectors.

The perception of overall job quality in transport sectors, based on the analysis of the EWC data (European Working Conditions Survey of Eurofound 2005 and 2010), is summarized in table 1.

[2] European Parliament (2009), *Indicators of job quality in the European Union.*
[3] EESC (2011), *TEN/445. Social aspects of EU Transport Policy.*

Table 1 Employees' experience/perception of aspects of job quality/ attractiveness by transport sectors, compared to the total of all sectors (2010, EU27)

	Land	Water	Air	Warehousing and support activities
Employment quality				
Job flexibility				
- Changes of work schedule (no)	-	o	-	o
Employee participation				
- Involvement in work organisation/processes (always)	-	+	-	-
- Employee representation (yes)	+	+	+	+
- Raising issues with employee representative (yes)	+	+	+	+
Skills development				
- On-the-job training (yes)	-	+	+	+
- More secure jobs because of training (yes)	o	n.s.	n.s.	+
- Better employment prospects because of training (yes)	-	+	+	+
Work quality				
Work autonomy				
- Solving unforeseen problems on one's own (yes)	+	+	+	-
Physical working conditions, health and safety				
- Exposure to vibrations form machinery etc (never)	-	-	-	-
- Exposure to loud noise (never)	-	-	-	-
- Exposure to breathing in vapours (never)	+	-	+	+
- Involvement of tiring or painful positions (never)	-	+	+	o
- Involvement of repetitive hand/arm movements (never)	-	+	-	-
- Health or safety at risk because of work (no)	-	-	-	-
- Health affected by work (no)	-	-	-	-
Psychosocial risks				
- Short repetitive tasks (no)	-	+	-	+
Intensity of work				
- Ability to choose/change speed/rate work (yes)	-	-	-	-
Meaningfulness of work				
- Feeling of doing useful work (always)	-	o	+	-
- Emotionally involved in work (always)	-	-	-	-

+ = above average; o = average; - =below average

n.s. = not significant

Weighted results.

Source: EWCS 2010. Processing: Panteia

4 ATTRACTIVENESS OF JOBS IN TRANSPORT

The attractiveness of jobs in transport depends strongly on the quality of the jobs in this sector. As described in the previous chapter, job quality is a multidimensional concept that covers many different aspects, varying from wages, formal training and (flexibility in) working hours to health implications of work, work autonomy and the meaningfulness of work. In this chapter, a comparison of the perceived quality of jobs both within the transport sector (subsectors and occupations) and between the transport sector and the business sector in general is made. For these quantitative analyses on job attractiveness, data from EUROSTAT's Structural Business Statistics (SBS, 2008, 2009 and 2010) and of the five-yearly European Working Conditions Survey of Eurofound (EWCS, 2005 and 2010) was used.

The study analysed a large number of indicators of job quality (available in the full report). Three EWCS indicators of overall job quality are discussed here:

- Satisfaction with working conditions
- Satisfaction with wage
- Motivation to perform

A summary of the scores for these indicators is presented in Table 2 (by transport sector) and Table 3 (by transport occupation).

Table 2 Indicators of overall job quality by transport sector (2010, EU27)

	Satisfaction with working conditions (4 point scale)		Satisfaction with wage (5 point scale)		Motivation to perform (5 point scale)	
Transport sector	Mean	St.dev.	Mean	St.dev.	Mean	St.dev.
Land transport and transport via pipelines	2,89	0,72	2,91	1,12	3,38	1,09
Water transport	3,14	0,75	3,74	1,09	3,72	1,1
Air transport	3,18	0,66	3,4	1,18	3,87	0,91
Warehousing and support activities for transportation	3,01	0,66	3,22	1,26	3,43	1,16
Total	2,94	0,72	3	1,15	3,44	1,09

Satisfaction with working conditions is measured on a four-point scale, ranging from 1 (very unsatisfied) to 4 (very satisfied). Satisfaction with wage and motivation to perform are measured on a 5-point scale, ranging from 1 (strongly disagree with statement) to 5 (strongly agree with statement)

Weighted results. Source: EWCS 2010. Processing: Panteia

Table 3 Indicators of overall job quality by transport occupation (2010, EU27)

	Satisfaction with working conditions		Satisfaction with wage		Motivation to perform	
Transport occupation	Mean	St.dev.	Mean	St.dev.	Mean	St.dev.
Supply, distribution and related managers	3,07	0,67	3,31	1,13	3,77	1,03
Car, taxi and van drivers	2,84	0,72	2,79	1,13	3,35	1,1
Bus and tram drivers	2,88	0,77	2,91	1,16	3,27	1,14
Heavy truck and lorry drivers	2,81	0,74	2,95	1,09	3,42	1,05
Lifting truck operators	2,85	0,68	2,83	1,17	3,3	1,14
Freight handlers	2,74	0,78	2,67	1,11	3,2	1,09
Other transport occupations	3,09	0,73	3,39	1,13	3,63	1,06
Total	2,88	0,74	2,97	1,14	3,42	1,09

Satisfaction with working conditions is measured on a four-point scale, ranging from 1 (very unsatisfied) to 4 (very satisfied). Satisfaction with wage and motivation to perform are measured on a 5-point scale, ranging from 1 (strongly disagree with statement) to 5 (strongly agree with statement)

Weighted results. Source: EWCS 2010. Processing: Panteia

Additionally, regression analyses were carried out to determine significant/relevant indicators of job quality. The analyses included the following research:

– *Working conditions* are *influenced by*: personal characteristics, work quality and employment quality. They *influence* satisfaction with wage and motivation to perform.

– *Wage satisfaction* is *influenced by*: personal characteristics, work quality, employment quality, working conditions and motivation to perform. It *influences* motivation.

– *Motivation* is *influenced by*: personal characteristics, work quality, employment quality, working conditions and wage satisfaction. It *influences* wage satisfaction.

Employment quality influencing working conditions:

- Significant: Working hours fit in with your family or social commitments outside work?
- Significant: I might lose my job in the next 6 months
- Not significant: Training

Work quality influencing working conditions:

- Significant: Does your main paid job involve - Repetitive hand or arm movements?

- Significant: Your job gives you the feeling of work well done?
- Significant: Does your work affect your health, or not?
- Significant: Over the last month, during the course of your work have you been subjected to verbal abuse?

- Not significant: Contact with chemical products.
- Not significant: You have the feeling of doing useful work (interesting as this is opposite to the "feeling of work well done", which is significant),

Personal characteristics and other influencing working conditions:

- Not significant: Age, gender and working hours (both current and preferred).

The three variables **influencing satisfaction with wage the most** are:

- Satisfaction with working conditions (another main indicator)
- Wage
- Your job gives you the feeling of work well done.

5 "LABOUR MAP" OF THE TRANSPORT SECTOR

An analysis of the Labour Force Survey has been carried out in order to gain insight into the recent evolution and current situation of the labour market in the EU from the *supply side*, that is, focusing on the transport occupations rather than dealing with transport as economic activity. We have therefore been able to address issues such as:
- demographics of the transport professions: average age evolution and age distribution, as well as female participation in these groups of professionals.
- working conditions, as a proxy for the attractiveness of these professions in the context of the labour market, assessing the degree of atypical working hours in these occupations, whether a typical working week comprises more than 40 hours, or the share of workers in these groups looking for another job.
- educational background and level together with access to training in these professions (to be completed).

Overall results

The analysis of the EU labour market for the transport sector in the last years (2002-2010) yields an overall fairly stable picture. The percentage of the active population carrying out jobs defined as transport occupations[4] has stayed at around 4.5% during those years, with a slight increase of 2.9% of total transport workers. The evolution of employment in transport occupations has been determined, as the rest of the economy, by the crisis – for the period 2002-2007, however, the transport occupations witnessed a growth of almost a 6%, decreasing markedly in 2009.

[4] Following the International standard classification of occupations (ISCO-88) (3 digits): ISCO 314 Ship and aircraft controllers and technicians, ISCO 511 Travel attendants and related workers, ISCO 831 Locomotive engine drivers and related workers, ISCO 832 Motor vehicle drivers, ISCO 834 Ships' deck crews and related workers, ISCO 933 Transport labourers and freight handlers.

Figure 1: Evolution of employment for transport occupations

Focusing on the different sub-groups of transport occupations, we again confirm this stability in terms of the relative composition of transport occupation employment (see Figure 2). Some considerations arise, however, from a more detailed analysis of the employment trends in these sub-groups. Occupations such as Vehicle Drivers, Freight Handlers and Ship and Aircraft Controllers and Technicians present an upward trend, which is decidedly more marked for the latter. Contrastingly, Railway Workers presents a decline which was more noticeable, interestingly, in the early years of the last decade (2002-2006)[5]. Finally, Travel Attendants or Ship Crews displayed a less discernible trend, with important variations throughout the series.

[5] Could be partly due to a reclassification of workers towards railway infrastructure managers.

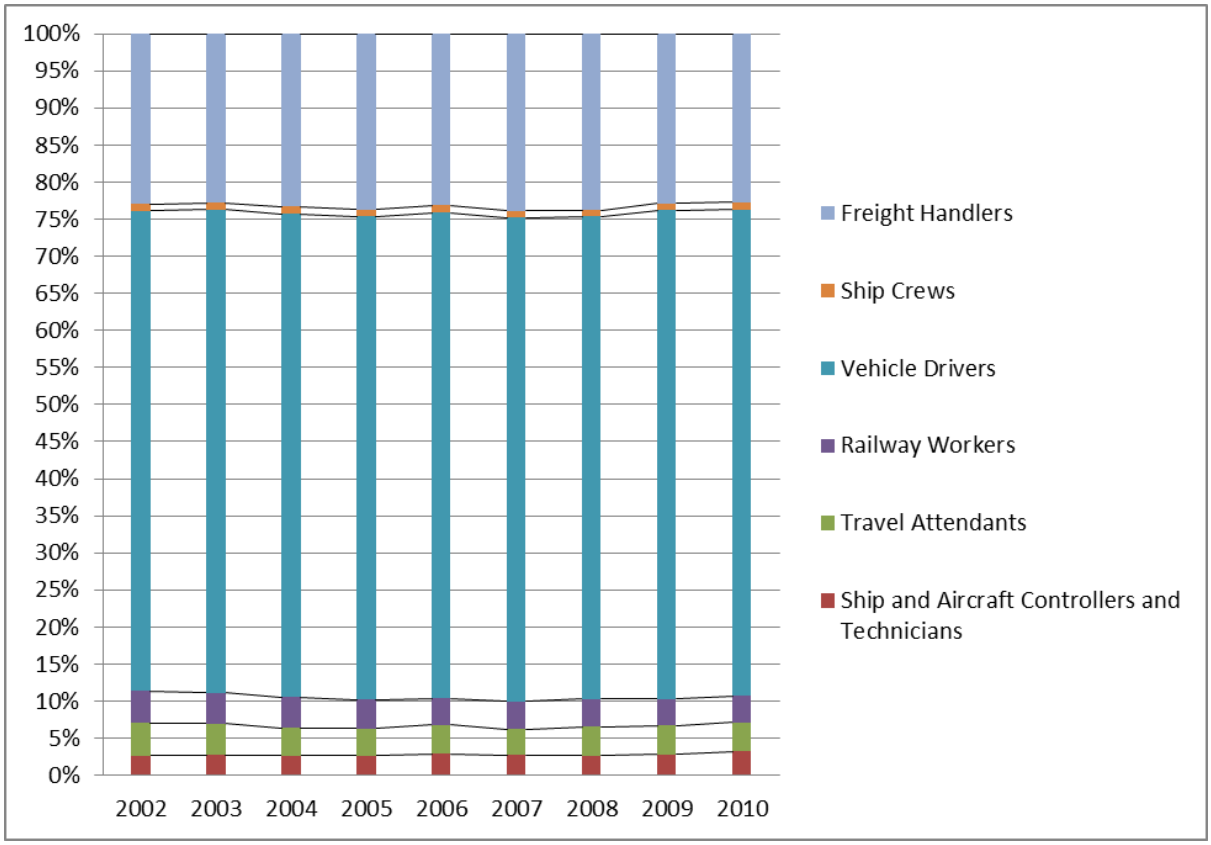

Figure 2: Share of transport occupations in total transport employment

Demographic aspects

The workforce in the transport occupations evinces an ageing issue, as is the case for the overall European population, with an increasing average age very much aligned (on the upper side) with the trend of the rest of the workforce (see Figure 3). Notwithstanding, there can be drawn a distinction between a group comprised by Railway Workers, Vehicle Drivers and Ship and Air Controllers and Technicians, with a higher average age, and the Freight Handlers and Travel Attendants with a lower average age.

In terms of female participation (see Figure 4), these professional groups show a very low female employment rate, which stays below a 10% for the last years for all sub-groups except Freight Handlers and Travel Attendants, with a significant contrasting picture for the latter (women represented over a 60% of the total employed persons in this group in 2010). In general terms, the female participation in transport occupations displays a modest growth, with the exception of Ship and Aircraft Controllers and Technicians, where the share of employed women has declined over 2% in the years 2005-2010.

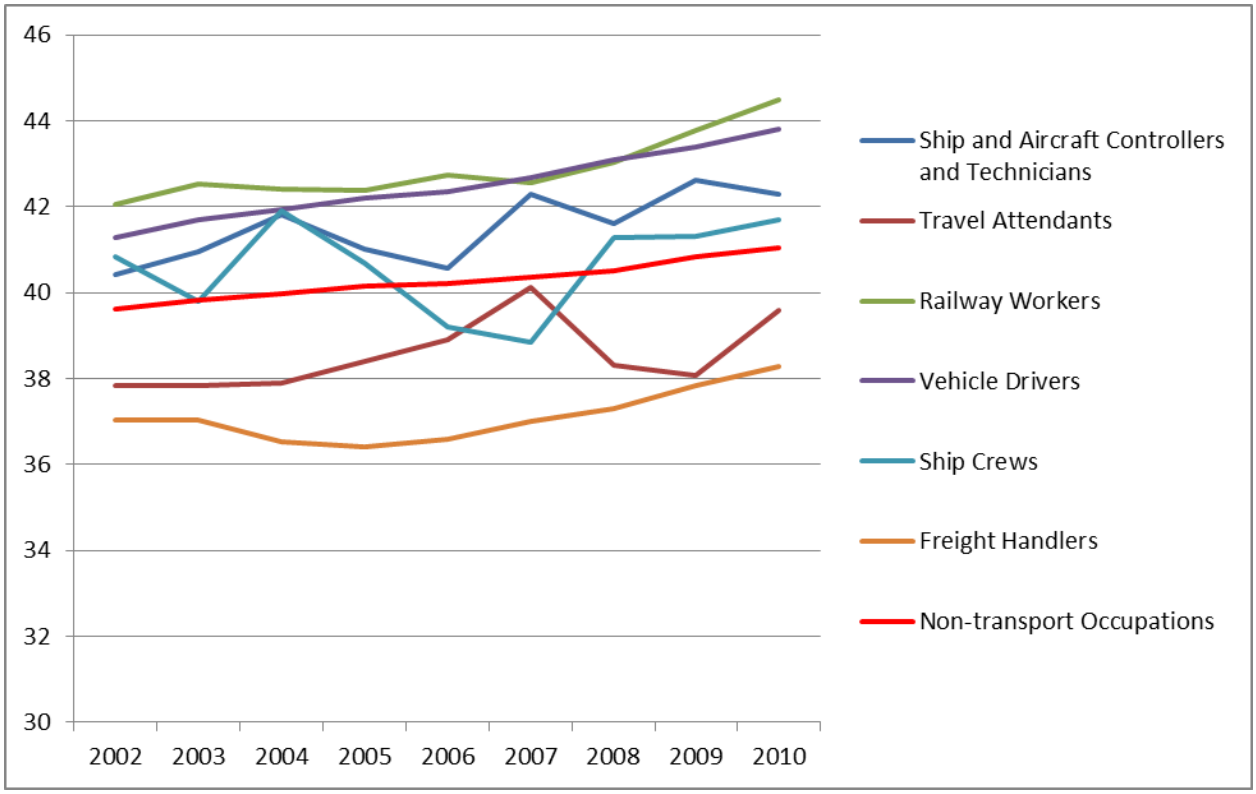

Figure 3: Average age by transport occupations

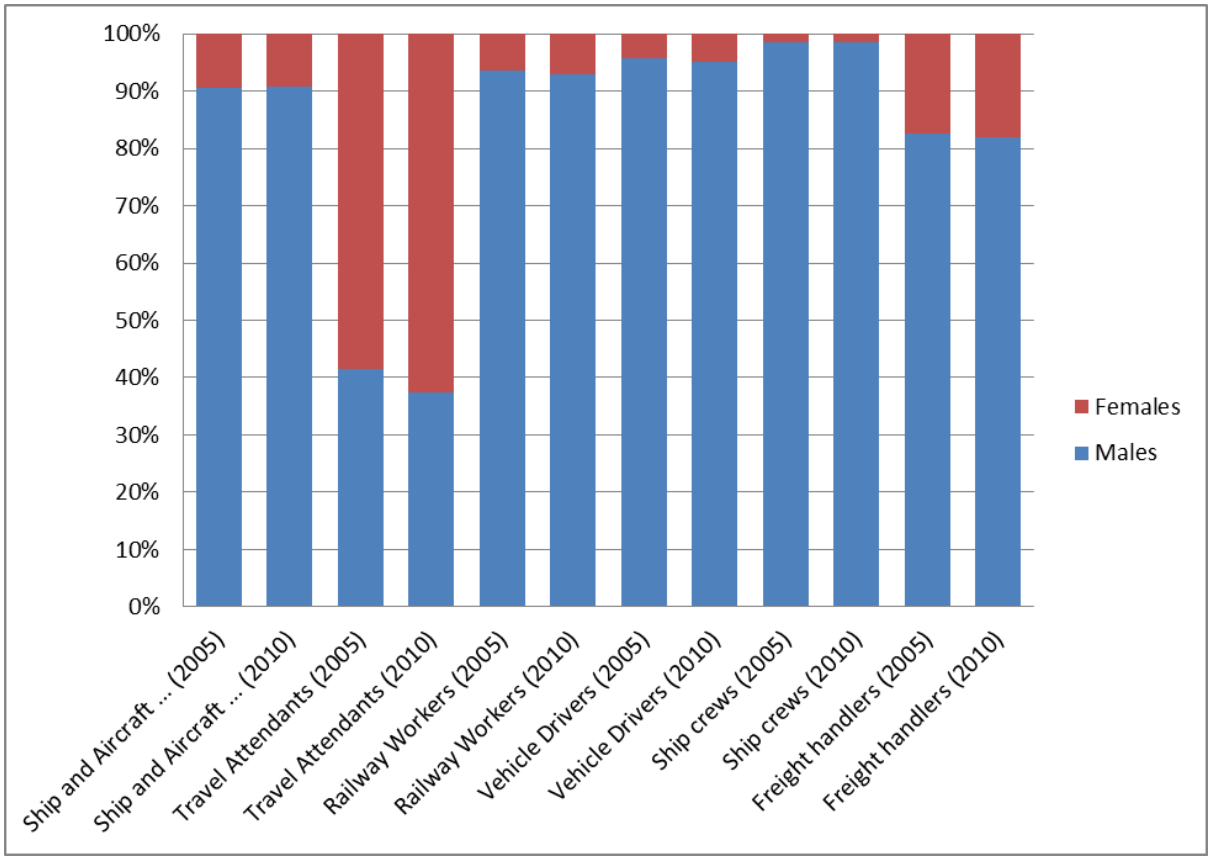

Figure 4: Gender share by transport occupation

Working conditions

The characterisation of some aspects of the working life of those in the transport professions has been based on respondents' answers to a series of questions regarding the overall working conditions in their jobs, such as of night or weekend shifts (atypical working hours), a typical working week comprising more than 40 hours, or the share of workers in these groups looking for another job. The results show increasing demand for shifts outside typical working hours (see **Error! Reference source not found.**) with a clear reduction of these as the crisis hit in 2008. Regarding working weekly hours, we can see a different picture for the different sub-groups in the transport occupations, with Railway Workers, Travel Attendants and Freight Handlers showing a lower rate of weekly working hours above 40 compared to the EU average, whereas the rest of occupations in transport report a higher rate of working weeks above 40 hours (see **Error! Reference source not found.**). Finally, the share of workers looking for another job presents significant differences when taking into consideration the sub-groups within the transport occupations, with Freight Handlers as the sub-group with higher share of jobholders seeking a new position and Railway Workers displaying the lowest intentions of changing jobs (see **Error! Reference source not found.**).

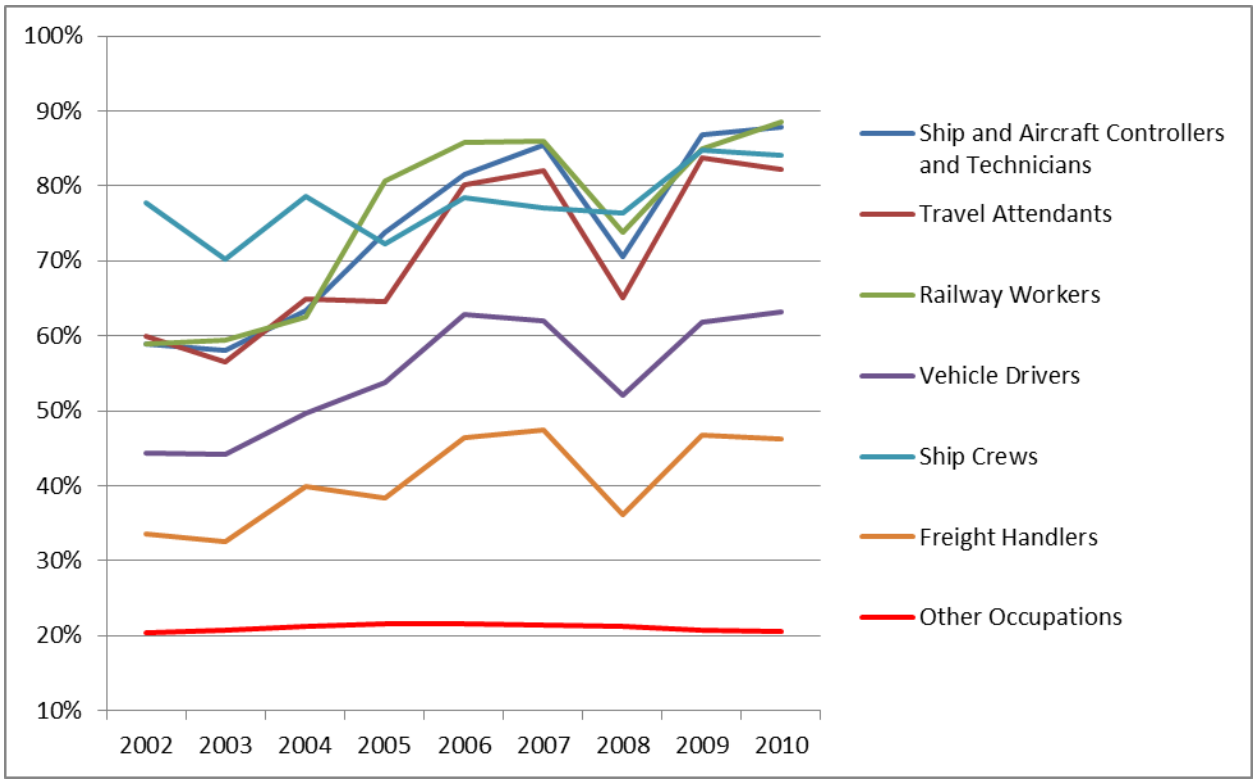

Figure 5: Share of workers with atypical working hours

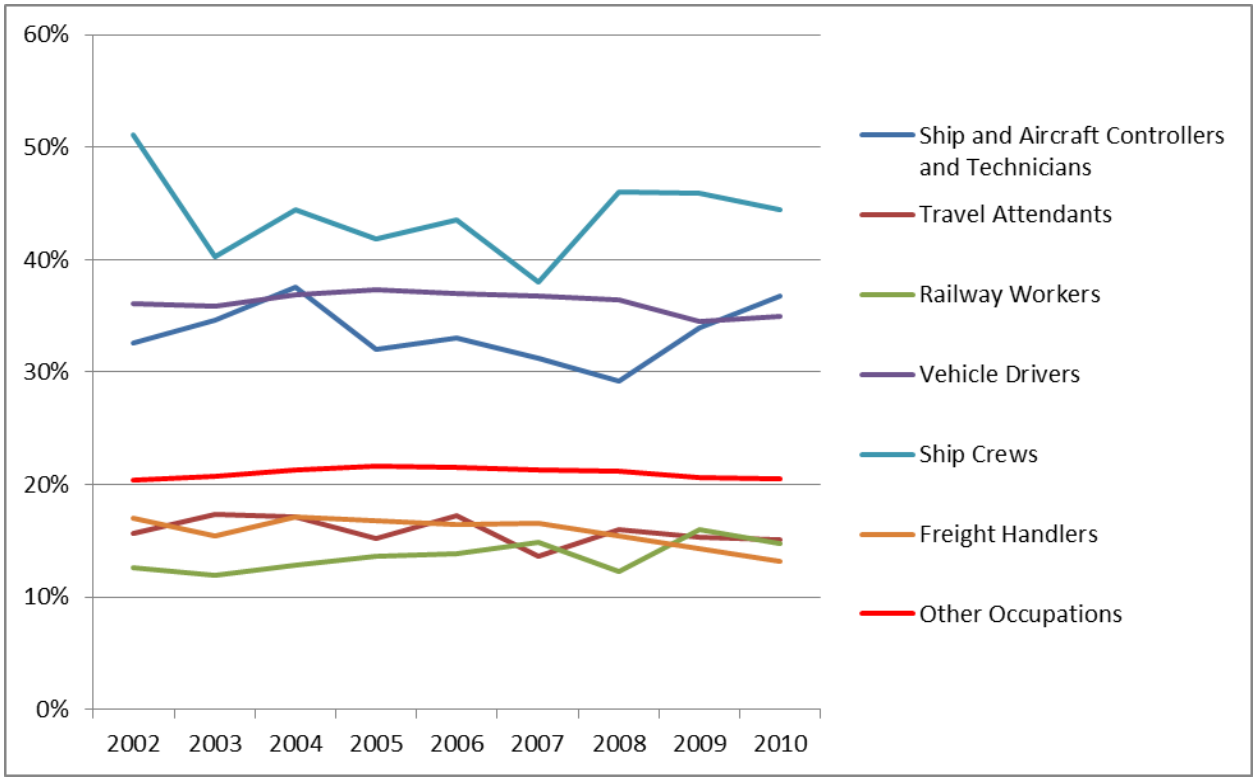

Figure 6: Share of workers with weekly hours above 40

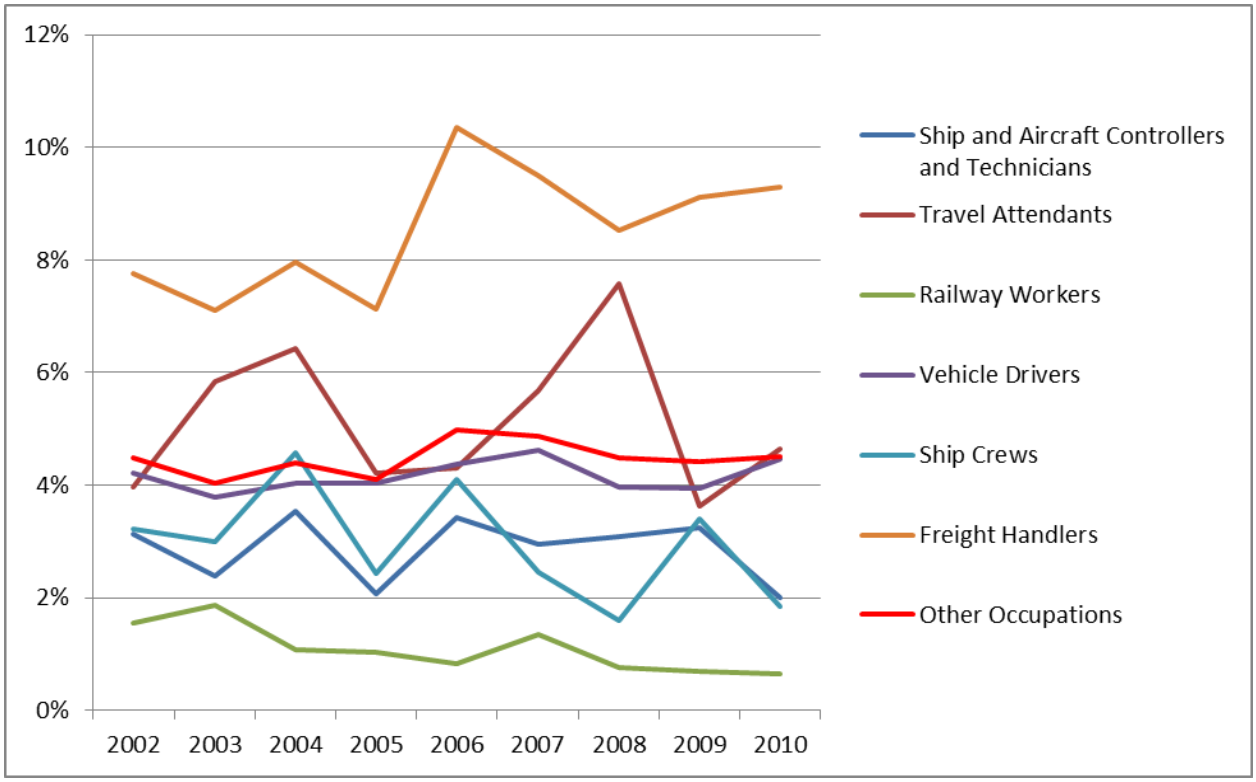

Figure 7: Share of workers looking for another job

6 QUANTITATIVE PROJECTIONS

The results described here correspond to the quantitative analysis foreseen for the first half of the project
Since no specific model or quantitative tool was available in order to answer all research questions, a combination of four models was applied:

- Labour force dynamics model
- Production function approach
- Input-Output model (FIDELIO)
- Computable General Equilibrium approach

Each model addresses some particular aspects which -when combined- can give a global picture of the trends and expected impacts. The first iteration of the model simulations gives a rather coherent picture, but the addition of more detail in the next stage of the project will most probably improve the quality of the results even further. At this stage, the analysis is still limited to the aggregate transport sub-sectors (land, water, air) and is mainly useful for comparisons across the transport sub-sectors and with other sectors. The next phase will also include profession level detail and will use uniform projections across all models as regards productivity growth and overall transport activity.

This part of the project analyses the development of employment in various transport sectors from different viewpoints, and by means of a variety of analytical approaches. The study focuses on both the supply side (i.e. the workforce capacity) and the demand side (i.e., the number of employees required in order to meet the future transport activity). In doing so it aims to identify the gap between the supply and demand side, and to provide some indications on the degree of change required in the labour force dynamics in order to close this gap. The analysis mainly focuses on the quantitative discrepancies between capacity and demand, but also addresses relevant qualitative aspects including the demographic composition of the workforce.

The main conclusions from the quantitative estimates of future demand and supply in the transport labour market are the following:

- High exit rates are expected for employees in transport sectors after the age of 50. Exit rates are higher for mobile workers, possibly because of their specific working conditions.
- Given the age structure and the expected retirement and exit rates, 30% of employees in 2010 will leave transport by 2020.
- The career starting age depends on mode & profession. Obviously the education and training requirements play an important role.
- Shifts from/to other sectors depend on relative attractiveness of jobs. Shifts between transport subsectors are less frequent than shifts between transport sectors and other sectors of the economy.
- Unemployment in transport has a cyclical impact, but structural dimension can be important (skills & age)
- Productivity growth depends only partly on technological progress and organisational innovation (e.g. yield management). Investment and investment-led

productivity are more important factors in the transport sectors, since in general they are more capital intensive than the average of the whole economy.

- There are important differences among modes as regards capital intensity, investment and resulting productivity growth

The future demand for labour depends primarily on the future transport activity and the productivity growth in each transport sector. The quantitative projections use the White Paper Reference scenario as a basis for the estimates. Productivity growth is modelled based on the existing trends in its underlying factors (capital investment, return on capital, labour productivity). Potential supply is assumed that initially will remain stable and will gradually adapt, with a lag, to increasing demand. The combination of the model parameters used corresponds to a situation of equilibrium in 2005. Based on these, the model implies that demand was lower than supply in 2010 (ie there was unemployment), a new equilibrium may be reached around 2015 and – if the supply part does not react in time- there may be not enough supply to cover demand by 2020. In practical terms, this can be interpreted as a need to ensure that potential employees with the right skills, education or certification will be available in order to cover the needs of retiring employees and increased transport activity by 2020.

Tables 4 to 6 summarize the projections at EU level for land, maritime and air transport.

Table 4: Projected number of jobs in land transport, EU-27

	2000	2005	2010	2015	2020
Number of jobs (million)	5.2	5.8	6.3	6.2-6.5	6.5-6.9
% change from 2005				5.5%-12%	12%-19%

Increased demand (thousands)		2010	2015	2020
Retired 2005 employees	(+)	200- 250	900-1200	1700-2100
Labour demand from increased activity	(+)	400- 500	400-700	700-1100
New labour supply	(-)	700-800	1400-1800	2200-2700
Gap		**-100 to -50**	**-100 to +100**	**+200 to +500**

Table 5: Projected number of jobs in maritime transport, EU-27

	2000	2005	2010	2015	2020
Number of jobs (thousands)	295	312	324	320-340	340-360
% change from 2005				3%-9%	9%-16%

Increased demand (thousands)		2010	2015	2020
Retired 2005 employees	(+)	20	60	100
Labour demand from increased activity	(+)	12	25	30-40
New labour supply	(-)	18	30-40	60-80
Gap		**+15**	**+30 to +50**	**+40 to +70**

Table 6: Projected number of jobs in aviation, EU-27

	2000	2005	2010	2015	2020
Number of jobs (thousands)	458	446	447	500-550	600-650
% change from 2005				12%-23%	35%-46%

Increased demand (thousands)		2010	2015	2020
Retired 2005 employees	(+)	30	50-80	110-130
Labour demand from increased activity	(+)	0	60-100	160-200
New labour supply	(-)	60	120-150	200-250
Gap		**-20**	**-10 to +20**	**+30 to +80**

7 TARGETED STAKEHOLDER CONSULTATION

The approach of the study consists of a large number of instruments, including data search, econometric analyses, modelling, literature review and interviews. In practice however, many knowledge gaps remain due to the limited availability of detailed data. Much is only known at sector level or for a combination of modes and for large sets of occupations. In addition, the opinion of a broad range of stakeholders would be very useful in validating the findings of the study.

The most efficient way to realise such a goal appears to be conducting a targeted stakeholder consultation. While enterprises are the main target, the consultation is designed in such a way that it is open to other organisations or individuals as well. Different paths of questions will be allowed for different types of participants (i.e. enterprises – other participants).

To stimulate the participation of the relevant institutes, the questionnaire is kept as easy as possible, using multiple choice answers as much as possible. The number of main questions is restricted at about 30. The inventory is directed at fact-finding in the first place.

Where applicable, the questionnaire will invite the participants to quantify their answers. In this way, the best possible support for further model building is to be expected.

- questions to characterise the organisation of the participant (type (enterprise, employee, representative, government), size (micro, SME, large), mode (rail, aviation, road, inland waterways, maritime/ports, logistics), sectors (passengers transport, freight transport), segments (urban, regional, international), types of jobs (for instance drivers, conductors, technical personnel, logistic staff, administrative staff, management staff), countries or European regions
- questions to identify the role of PESTLE factors (i.e. political, economic, social, technological, legal and environmental factors);
- questions to describe the current situation concerning shortage risks, job characteristics and satisfaction and training needs and facilities;
- questions to describe the future expectations about the same issues;
- questions to get the participant's view on solutions, with a specific focus on working conditions and training.

The consultation will be brought to public attention using the 'your voice' website. In addition, the enterprise networks of Panteia/NEA and PwC will be notified. Also, organisations participating in the study to date (e.g. business representatives) will be asked to raise awareness (through their members).

The questionnaire is currently being finalised and the public consultation phase will take place probably during November and December 2013.

8 SUMMARY OF PRELIMINARY FINDINGS AND NEXT STEPS

The main conclusions of the analysis so far can be summarized as follows:

- It is difficult to generalize for transport as a single labour market, since each mode and sub-sector has effectively a different labour market with different conditions
- While the various sub-sectors show some common characteristics -mainly as regards the mobile nature, the atypical working hours and the safety responsibilities - the supply and demand for jobs is different for every sector and profession.
- The ageing of the workforce in all transport modes is expected to be an issue as we get closer to 2020 and a significant number of employees will need to be replaced, especially in aviation and water transport transport.
- The overall levels of employment in transport are expected to demonstrate a small increase, driven in part by higher levels of transport activity.
- The productivity increase in transport would lead to a decrease of employment in transport **for the same level of transport activity**, but would lead to an increase of wages for the whole of the economy and all skill levels.
- Transport jobs offer on average higher wages than other economic sectors for low and medium skill levels. The comparative advantage of transport jobs in this aspect is expected to grow in the future.
- The demand for low and medium skill level employment in transport is expected to grow faster than demand for high skill level employment. The job content of low and medium skill work is also probably going to change upwards.
- Many of the observed trends in changing working conditions in transport are the result of general economic trends and are comparable to the trends in other economic sectors. The impacts of the economic crisis, globalization, liberalization and technological progress affect labour markets and working conditions in transport in a similar way as they affect most other economic sectors.
- There may be scope for specific policy intervention in the transport labour markets in order to address potential discrepancies that are due to the specific nature of transport activities. This mainly concerns mobile workers, working time and education/ certification systems. Legislation on minimum requirements at EU level already exists on most relevant issues –both specifically for transport and as part of the general employment legislation- but worries have been expressed by stakeholders as regards the degree of compliance and implementation.

- The next steps of the analysis will fine-tune the results of the quantitative analysis by introducing more detail in the assumptions used and by incorporating the findings of the remaining activities of the project. The qualitative part of the study, carried out by PANTEIA and PwC, will provide a better insight into the drivers for change in employment related issues in all transport sectors and more detail as regards the level of analysis of skills and professions within the transport sector. The remaining work will mainly concentrate on:
- Analysis of training/education systems and their impact on supply and demand
- Launching a targeted stakeholder consultation and processing of its results
- Identifications of problem areas, possible solutions and areas for policy intervention
- Validate of the overall results through workshop/interviews

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Authors: P. Christidis, E. Navajas, V. Pedret-Cusco, P. Vrohoof, J. Shoemaker, D. Artuso

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Abstract
This report provides a summary for policy makers of the interim results of the research activities carried out by the Joint Research Centre (JRC) in support of DG MOVE for the analysis of employment and skills issues in transport. The work addresses the attractiveness of working conditions and the supply of skills in the EU transport sector with recommendations for measures for improving them at EU level.

The project is being carried out through a combination of in-house research in JRC with the input provided by an external study carried out Panteia/EIM and PwC Italy.

The overall objective of the project is to evaluate the quality of work in all transport modes, with respect to, notably, training, certification, working conditions and career development, with a view to creating quality jobs, developing the necessary skills and strengthening the competitiveness of EU transport operators.

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As the Commission's in-house science service, the Joint Research Centre's mission is to provide EU policies with independent, evidence-based scientific and technical support throughout the whole policy cycle.

Working in close cooperation with policy Directorates-General, the JRC addresses key societal challenges while stimulating innovation through developing new standards, methods and tools, and sharing and transferring its know-how to the Member States and international community.

Key policy areas include: environment and climate change; energy and transport; agriculture and food security; health and consumer protection; information society and digital agenda; safety and security including nuclear; all supported through a cross-cutting and multi-disciplinary approach.

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