

# Job Creation Through Green Transport

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*Cyprine Odada*

Transport is one of the most important pillars of any economy and a common tool used to grow socio-economic opportunities. It is a derived demand and a means for enabling people’s access to other people or places. Efficient transport systems result in a positive multiplier effect such as better accessibility to markets, employment, and additional investments. Deficient transport systems can have negative implications to the economy through reduced or missed opportunities and lower quality of life.<sup>1</sup>

The downside of transport is its adverse environmental and health impacts, particularly in urban areas. Transport is indeed a major contributor to air pollution, and in Europe and North America, for example, transport contributes to 24% of total greenhouse gas emissions.<sup>2</sup> Transport is also identified as a major contributor to road accidents, excessive levels of noise, heavy congestion, social exclusion and reduced opportunities for physical activity, etc.<sup>3</sup> In light of these negative impacts, several cities are pushing for Green Transport Policies that encourage: electric vehicles, public transport, walking and cycling, or any other form of transport that will reverse this negative trajectory.

This paper highlights research findings and case studies that support the advancement in green transport. The paper will also highlight how cities can increase employment opportunities by investing in sustainable transport and mobility systems.

## Key messages

- Although investing in green transport is beneficial to people in all wage categories, it is even more beneficial to lower wage workers who are more likely than others to be transit dependent.
- A chain of employment opportunities can be generated from investing in green transport.
- Several employment opportunities can be generated as a result of the continued successive re-spending on the local economy.

## Introduction

Green transport has the potential to contribute to a wide range of jobs. This can be directly through the construction and maintenance of infrastructure such as pavements, bicycle lanes and bus stops, or manufacture of rolling stock, buses and bicycles or operation and maintenance of the infrastructure or associated vehicles. Additionally, indirect employment opportunities that stem from the value chain are even more salient through the construction, manufacturing or maintenance industry (e.g., production of spare bicycle parts or materials for bicycle lane construction) or one in professional and administrative services for managing the operation of green and healthy transport systems. Induced jobs can also be created when more households that receive income directly or indirectly from green transport spend more of their income in the economy. The overall spending in the economy results in the creation of even more jobs.

For example, to further understand the employment impact of green transport and in this case, public transport in the UN Economic Commission for Europe (ECE) region, the International Labour Organization (ILO) commissioned a study that identified five public transport investment scenarios. The scenarios were:

- A business-as-usual scenario;
- A doubling of investment in public transport;
- Free public transport;
- Doubling of public transport services;
- A ban on internal combustion engines for passenger transport within cities.

All five scenarios envisaged an acceleration in the creation of several job opportunities in the ECE region. The study projected that doubling investment in public transport will stimulate the use of public transport, thus creating at least 2.5 million additional jobs. This increases to at least 5 million jobs if the wider impact on other sectors of the economy is considered. Electrification of motor vehicles was also projected to result in 10 million more jobs being created. A ban on internal combustion engines for light commercial vehicles was projected to lead to 0.4 million new jobs in transport and to as many as 8.5 million new jobs if the impact on other sectors is also taken into account.<sup>4</sup>

## Case Studies

### The Delhi Metro System in India

The Delhi Metro is the largest and busiest rapid transit system in India covering 253 stations with a total length of 348 kilometers, operating over 2700 trips daily. The metro system is also the first metro system in the world to get carbon credits for reducing carbon emission levels in the city by using regenerative brakes in the trains and reducing emissions by 630,000 tons every year.<sup>5</sup>

The Delhi Metro began operations in 2002 with about 2,400 employees. As of March 2019, the company had about 14,353 employees with 1,970 in project management and 12,383 operations and maintenance. In an effort to ensure that more females become a part of the project, the company provided a non-discriminatory workplace policy with enabling support

provided to female employees such as crèche facilities, provision of female doctors, leadership training, etc.<sup>6</sup>

Other than the jobs created during the planning, construction, management and maintenance of the Delhi Metro, a key component of the employment impact of the metro system is the local manufacture of rolling stock. Contractual conditions sustained indigenization of the manufacturing process resulting in 90 percent of the Delhi metro trains being manufactured in India. Besides manufacturing of rolling stock, 18 major subsystems have also been localized.<sup>7</sup>

Delhi Metro suffered huge losses because of the COVID-19 pandemic, due to the suspension of metro services from March 2020 to September 2020. To contain the spread of the disease, several measures were put in place including: Contactless or cashless payment systems by using only smart cards; social distancing in trains, stations, lifts and escalators; frisking and thermal checks; mandatory use of face masks; hand sanitizing stations with regular sanitizing of trains; and increased stoppage times for boarding and alighting.<sup>8</sup>

### **The Hiawatha LRT in the Twin Cities**

The Hiawatha LRT is a 12-mile light rail transit system connecting three popular destinations in the cities of Minneapolis and Bloomington, United States. The Hiawatha LRT system was opened in 2004 and recorded a passenger ridership of 42.9 million in 2010. The LRT system has 19 stations that are served by several feeder bus facilities, including three park and ride facilities.<sup>9</sup>

A study carried out by the Journal of Transport and Land Use (JTLU) to understand the impact of the Hiawatha light-rail implementation on labor market accessibility, found that the Hiawatha light-rail line generated significant job accessibility. The study applied a cumulative opportunity approach across the whole transit network, calculating job accessibility for different wage categories including low, middle and high wage categories.

The researchers also found that having a well-connected LRT line significantly improved access to all job categories, especially for those in the low wage category, a cohort that is more likely than others to be transit dependent.<sup>10</sup>

### **The cycling industry in Portland, Oregon**

Globally the economic impact of cycling and the role it plays in creating jobs is severely underreported and undervalued. Investments in cycling are also disproportionately disadvantaged compared to investments dedicated towards other transport modes. The severe lack of cycling-friendly policies has also contributed towards the downscaling of cycling.

That said, there are some cities that are making great strides towards having cycling-friendly streets and policies. The city of Portland, United States for example, developed a comprehensive Bicycle Master Plan in 1996 which led to an increase in the size of the biking network and the number of bicyclists. The city has also constructed several kilometers of cycling infrastructure that would encourage more people to cycle. Portland has 314 miles of bikeways: 202 miles of separated bike lanes, 36 miles of neighborhood greenways, 76 miles of off-street bike paths and a few miles of cycle tracks. The other notable contribution of cycling to Portland is the number of jobs that are generated.<sup>11</sup>

Some of the direct jobs created include design and manufacture of bicycles, design and manufacture bicycle accessories, wholesale and retail of bicycles and bicycle accessories,

servicing and maintenance of bicycles, bike parking, bike messengers, bike races, bike rental and bike tourism. The other direct industry is in the planning, design, construction and maintenance of cycling infrastructure. There are also several indirect or induced jobs created such as restaurants and coffee shops, pop up markets, concerts, etc.

A 2008 study carried out by Alta Planning + Design, concluded that the bicycle industry consisted of around 140 businesses in 2008 and sustained 850-1150 jobs with a total impact of \$90 million to Portland’s economy. The study also found that the retail sector was most dominant but with a fast-growing manufacturing and distribution sector. Hand-built bicycle manufacturers increased from 5 to 17 (340% growth).<sup>12</sup>

Portland also hosts nearly 4000 annual races, rides, events and tours (an average of one ride every 27 minutes).<sup>13</sup>

As of September 2015, the Portland bicycle industry consisted of 217 businesses divided by retailers (100), manufacturers (78), wholesale/distribution (8) and service businesses (31) employing almost 1,500 people who are paid \$39.4 million in compensation. The largest employment sectors are retail (800 jobs) and manufacturing (460 jobs) while the service and wholesale/distribution sectors are small in comparison (amounting to 200 jobs in combination). In total, the industry sales amount to an annual \$296 million with manufacturers and wholesale/distribution businesses accounting for two-thirds of the sales. Accounting for both direct, indirect, and induced impacts, the economic activity of the Portland bicycle industry supports a total of 2,300 jobs with a total compensation of \$82.7 million. The total value added to the local economy is \$133.7 million annually and the total output of the industry is \$315.5 million. The sector with the largest employment in the industry is retailers. In total, the economic impacts of the bicycle industry generate \$27 million in taxes of which \$10 million is in state and local taxes.

In recent years several large bicycle companies such as Rapha have relocated to Portland with several other bicycle-related businesses emerging all over the city, from local neighborhood bicycle shops, to manufacturers of bicycle parts, accessories, apparel, and outerwear, as well as a variety of services oriented towards two wheeled consumers. These businesses are reinforced by the favorable and vibrant cycling culture in Portland. Extrapolations of historic trends in the bicycling industry by the City of Portland Employment Bureau, forecasted significant advancement in employment per sector.<sup>14</sup>

Sector	2015	2020	2025	2030
Manufacturing	27,195	27,118	26,391	25,353
Wholesale trade	20,529	21,810	22,810	23,010
Retail trade	34,515	34,139	33,855	33,593
Arts, entertainment and recreation	6,985	76,68	8,152	8,429

Table 1: Employment projections in the cycling sector in Portland

## Conclusion

The socio-economic role played by green transport therefore presents a very good case for the continued advancement of the sector even during a pandemic. Green transport was the backbone of many cities, providing an essential service that kept cities moving, even during a pandemic.

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<sup>1</sup> Jean-Paul, R., & Theo, N. (2013). Transportation and Economic Development. *The spatial organization of transportation and mobility.*

<sup>2</sup> WHO Regional Office for Europe, 2012.

<sup>3</sup> European Environment Agency, 2013.

<sup>4</sup> UNECE. (2020). Jobs in green and healthy transport. *Making the green shift.*

<sup>5</sup> Wikipedia. 2017. *Delhi Metro Rail Corporation.* Accessed 2020. [https://en.wikipedia.org/wiki/Delhi\\_Metro#cite\\_note-Delhi\\_Metro\\_Introduction-3](https://en.wikipedia.org/wiki/Delhi_Metro#cite_note-Delhi_Metro_Introduction-3).

<sup>6</sup> Corporation, Delhi Metro Rail. 2019. *Annual Report.* Accessed 2020. <http://www.delhimetrorail.com/OtherDocuments/DMRC-REPORT-2018-2019-English-Web.pdf>.

<sup>7</sup> Corporation, Delhi Metro Rail. 2017. Accessed 2020. [http://www.delhimetrorail.com/press\\_reldetails.aspx?id=fWYztNCsisG8EIId](http://www.delhimetrorail.com/press_reldetails.aspx?id=fWYztNCsisG8EIId).

<sup>8</sup> Nag, Devanjana. 2020. *Financial Express.* Accessed 2020. <https://www.financialexpress.com/infrastructure/covid-19-impact-on-delhi-metro-dmrc-suffers-loss-of-over-rs-1600-crore-due-to-closure-of-metro-services/2086389/>.

<sup>9</sup> Technology, R. (2020). *Hiawatha Light Rail Corridor.* Retrieved from <https://www.railway-technology.com/projects/hiawatha-light-rail/>.

<sup>10</sup> Fan, Y., Guthrie, A., & Levinson, D. (2012). Impact of light-rail implementation on labor market accessibility: A transportation equity perspective. *The Journal of Transport and Land use.*

<sup>11</sup> Walljasper, Jay. 2010. *Portland Finds Bike-Friendly Policies Boost Local Economy.* Accessed 2020. <https://www.shareable.net/Portland-Finds-Bike-Friendly-Policies-Boost-Local-Economy/>.

<sup>12</sup> Sustainability, Bureau of Planning and. 2015. *The Economic Impact of the Bicycle Industry in Portland.* Accessed 2020. [https://www.portland.gov/sites/default/files/2020-02/bicycleindustrytechnicalreport\\_2015.pdf](https://www.portland.gov/sites/default/files/2020-02/bicycleindustrytechnicalreport_2015.pdf).

<sup>13</sup> Design, Alta Planning +. 2008. *The Value of the Bicycle-Related Industry in Portland*. Accessed 2020. <https://industry.traveloregon.com/wp-content/uploads/2013/02/2008portlandbicyclerelatedeconomyreport.pdf>.

<sup>14</sup> Sustainability, Bureau of Planning and. 2015. *The Economic Impact of the Bicycle Industry in Portland*. Accessed 2020. [https://www.portland.gov/sites/default/files/2020-02/bicycleindustrytechnicalreport\\_2015.pdf](https://www.portland.gov/sites/default/files/2020-02/bicycleindustrytechnicalreport_2015.pdf).