

1,224 48

Views | CrossRef citations to date | Altmetric | 0

PAPERS

# Revisiting the applicability of learning curve theory to formwork labour productivity

Abdulaziz Jarkas  & Malcolm Horner

Pages 483-493 | Received 15 Apr 2010, Accepted 07 Feb 2011, Published online: 13 Jun 2011

 Cite this article  <https://doi.org/10.1080/01446193.2011.562911>

Sample our  
Built Environment  
Journals

>> [Sign in here](#) to start your access  
to the latest two volumes for 14 days



 Full Article

 Figures & data

 References

 Citations

 Metrics

 Reprints & Permissions

Read this article

 Share

## Abstract

The learning phenomenon has proved applicable in various industries, especially those associated with mass productions, such as aircraft and automobile assembly. The learning process in labour-intensive industries is assumed to be more significant in the sense that automated work is constrained by the fact that machines cannot benefit from previous experience and therefore would not 'learn' to run any faster or increase the rate of production. Several previous investigations into the applicability of learning curve theory to the construction industry proved the importance of this concept to labour productivity. Nevertheless, a thorough examination of the literature revealed a dearth of research into the effect of learning on the formwork operation of building floors. Consequently, the objective of this research is to explore the influence of recurring building floor configurations on formwork labour productivity. To achieve this objective, formwork labour inputs from 45 multi-storey in situ reinforced concrete

building frames were collected and analysed using the straight-line learning curve model. The cumulative average input for each cycle, i.e. floor, and its associated cycle number were modelled using the least squares method. According to the learning curve theory, we expect the labour inputs to decrease by a certain percentage, as the cycle number increases. Based on the results obtained, there is very little evidence for that.

Keywords:

Formwork

labour inputs

labour productivity

learning curve theory

learning phenomenon

### Related Research Data

[Using linear model for learning curve effect on highrise floor construction](#)

Source: Construction Management and Economics

[Learning Curve Models of Construction Productivity](#)

Source: Journal of Construction Engineering and Management

[The experience curve from the economist's perspective](#)

Source: Strategic Management Journal

[Learning Curve Predictors for Construction Field Operations](#)

Source: Journal of Construction Engineering and Management

[Exploration and exploitation in organizational learning](#)

Source: STUDI ORGANIZZATIVI

[A pragmatic approach to using resource loading, production, and learning curves on construction projects](#)

Source: Canadian Journal of Civil Engineering

[The learning curve, technology barriers to entry, and competitive survival in the chemical processing industries](#)



## Related research

People also read

Recommended articles

Cited by  
48

### Information for

[Authors](#)  
[R&D professionals](#)  
[Editors](#)  
[Librarians](#)  
[Societies](#)

### Opportunities

[Reprints and e-prints](#)  
[Advertising solutions](#)  
[Accelerated publication](#)  
[Corporate access solutions](#)

### Open access

[Overview](#)  
[Open journals](#)  
[Open Select](#)  
[Dove Medical Press](#)  
[F1000Research](#)

### Help and information

[Help and contact](#)  
[Newsroom](#)  
[All journals](#)  
[Books](#)

### Keep up to date

Register to receive personalised research and resources by email

 [Sign me up](#)



Copyright © 2026 Informa UK Limited [Privacy policy](#)

[Cookies](#) [Terms & conditions](#) [Accessibility](#)

 Taylor and Francis  
Group

Registered in England & Wales No. 01072954  
5 Howick Place | London | SW1P 1WG