

STATISTICS FOR ECONOMICS

Textbook for Class XI



11098

© NCERT
not to be republished

STATISTICS FOR ECONOMICS

Textbook for Class XI



**राष्ट्रीय शैक्षिक अनुसंधान और प्रशिक्षण परिषद्
NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING**

11098 – STATISTICS FOR ECONOMICS

Textbook for Class XI

ISBN 81-7450-497-4

First Edition

February 2006 Phalgun 1927

Reprinted

December 2006, December 2007,
January 2009, January 2010,
January 2011, January 2012,
December 2012, February 2015,
April 2016, December 2016,
January 2018, December 2018,
September 2019, January 2021,
November 2021

Revised Edition

November 2022 Kartika 1944

Reprinted

March 2024 Chaitra 1946
June 2024 Jyaishta 1946
January 2025 Magha 1946

PD 150T BS

© National Council of Educational
Research and Training, 2006, 2022

₹ 65.00

Printed on 80 GSM paper with
NCERT watermark

Published at the Publication Division
by the Secretary, National Council of
Educational Research and Training,
Sri Aurobindo Marg, New Delhi 110 016
and printed at VK Global Digital, Plot
No. 928, Sector-68, IMT Faridabad,
Haryana-121004

ALL RIGHTS RESERVED

- ❑ No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without the prior permission of the publisher.
- ❑ This book is sold subject to the condition that it shall not, by way of trade, be lent, re-sold, hired out or otherwise disposed of without the publisher's consent, in any form of binding or cover other than that in which it is published.
- ❑ The correct price of this publication is the price printed on this page. Any revised price indicated by a rubber stamp or by a sticker or by any other means is incorrect and should be unacceptable.

OFFICES OF THE PUBLICATION DIVISION, NCERT

NCERT Campus
Sri Aurobindo Marg
New Delhi 110 016

Phone : 011-26562708

108, 100 Feet Road
Hosdakere Halli Extension
Banashankari III Stage
Bengaluru 560 085

Phone : 080-26725740

Navjivan Trust Building
P.O. Navjivan
Ahmedabad 380 014

Phone : 079-27541446

CWC Campus
Opp. Dhankal Bus Stop
Panihati
Kolkata 700 114

Phone : 033-25530454

CWC Complex
Maligaon
Guwahati 781 021

Phone : 0361-2674869

Publication Team

Head, Publication Division : *M.V. Srinivasan*

Chief Editor : *Bijnan Sutar*

Chief Production Officer (In charge) : *Jahan Lal*

Chief Business Manager : *Amitabh Kumar*

Editor : *M.G. Bhagat*

Assistant Production Officer : *Sayuraj A.R.*

Cover
Shweta Rao

Illustrations and Layout
Sarita Verma Mathur

FOREWORD

The National Curriculum Framework (NCF), 2005, recommends that children's life at school must be linked to their life outside the school. This principle marks a departure from the legacy of bookish learning which continues to shape our system and causes a gap between the school, home and community. The syllabi and textbooks developed on the basis of NCF signify an attempt to implement this basic idea. They also attempt to discourage rote learning and the maintenance of sharp boundaries between different subject areas. We hope these measures will take us significantly further in the direction of a child-centred system of education outlined in the National Policy on Education (1986).

The success of this effort depends on the steps that school principals and teachers will take to encourage children to reflect on their own learning and to pursue imaginative activities and questions. We must recognise that, given space, time and freedom, children generate new knowledge by engaging with the information passed on to them by adults. Treating the prescribed textbook as the sole basis of examination is one of the key reasons why other resources and sites of learning are ignored. Inculcating creativity and initiative is possible if we perceive and treat children as participants in learning, not as receivers of a fixed body of knowledge.

These aims imply considerable change in school routines and mode of functioning. Flexibility in the daily time-table is as necessary as rigour in implementing the annual calendar so that the required number of teaching days are actually devoted to teaching. The methods used for teaching and evaluation will also determine how effective this textbook proves for making children's life at school a happy experience, rather than a source of stress or boredom. Syllabus designers have tried to address the problem of curricular burden by restructuring and reorienting knowledge at different stages with greater consideration for child psychology and the time available for teaching. The textbook attempts to enhance this endeavour by giving higher priority and space to opportunities for contemplation and wondering, discussion in small groups, and activities requiring hands-on experience.

The National Council of Educational Research and Training (NCERT) appreciates the hard work done by the textbook development team

responsible for this book. We wish to thank the Chairperson of the advisory group for Social Sciences textbooks at Higher Secondary Level, Professor Hari Vasudevan and the Chief Advisor for this book, Professor Tapas Majumdar for guiding the work of this committee. Several teachers contributed to the development of this textbook; we are grateful to them and their principals for making this possible. We are indebted to the institutions and organisations which have generously permitted us to draw upon their resources, material and personnel. We are especially grateful to the members of the National Monitoring Committee, appointed by the Department of Secondary and Higher Education, Ministry of Human Resource Development under the Chairmanship of Professor Mrinal Miri and Professor G.P. Deshpande, for their valuable time and contribution. As an organisation committed to systemic reform and continuous improvement in the quality of its products, NCERT welcomes comments and suggestions which will enable us to undertake further revision and refinement.

New Delhi
20 December 2005

Director
National Council of Educational
Research and Training

RATIONALISATION OF CONTENT IN THE TEXTBOOKS

In view of the COVID-19 pandemic, it is imperative to reduce content load on students. The National Education Policy 2020, also emphasises reducing the content load and providing opportunities for experiential learning with creative mindset. In this background, the NCERT has undertaken the exercise to rationalise the textbooks across all classes. Learning Outcomes already developed by the NCERT across classes have been taken into consideration in this exercise.

Contents of the textbooks have been rationalised in view of the following:

- Overlapping with similar content included in other subject areas in the same class
- Similar content included in the lower or higher class in the same subject
- Difficulty level
- Content, which is easily accessible to students without much interventions from teachers and can be learned by children through self-learning or peer-learning
- Content, which is irrelevant in the present context

This present edition, is a reformatted version after carrying out the changes given above.

© NCERT
not to be republished

TEXTBOOK DEVELOPMENT COMMITTEE

CHAIRPERSON, ADVISORY COMMITTEE FOR SOCIAL SCIENCE TEXTBOOKS AT HIGHER SECONDARY LEVEL

Hari Vasudevan, *Professor*, Department of History, University of Calcutta, Kolkata

CHIEF ADVISOR

Tapas Majumdar, *Emeritus Professor*, Jawaharlal Nehru University, New Delhi

MEMBERS

Bhawna Rajput, *Sr. Lecturer*, Aditi Mahavidyalaya, Delhi University, Delhi

E. Bijoykumar Singh, *Professor*, Department of Economics, Manipur University, Imphal

M.M. Goel, *Reader*, Department of Commerce, PGDAV College (M), Delhi University, Delhi

Meera Malhotra, *Head*, Economics, Modern School, Barakhamba Road, New Delhi

Sudhir Kumar, *Reader*, A. N. Sinha Institute of Social Studies, Patna

T. P. Sinha, *Reader*, Department of Economics, S.S.N. College, Delhi University, Delhi

MEMBER-COORDINATOR

Neeraja Rashmi, *Reader*, Economics, DESS, NCERT, New Delhi

ACKNOWLEDGEMENTS

Acknowledgements are due to Savita Sinha, *Professor and Head*, Department of Education in Social Sciences and Humanities, for her support in developing this textbook.

The Council is also thankful to J. Khuntia, *Senior Lecturer*, School of Correspondence Courses, Delhi University; T.M. Thomas, *Associate Professor*, Deshbandhu College, Delhi University; M.V. Srinivasan and Jaya Singh, *Lecturer*, DESSH, NCERT, for helping in finalising the textbook.

Special thanks are due to Vandana R. Singh, *Consultant Editor*, for going through the manuscript and suggesting relevant changes.

The Council also gratefully acknowledges the contributions of Amjad Husain and Girish Goyal, *DTP Operators*; Dillip Kumar Agasti, *Proofreader*; Dinesh Kumar, *In-charge*, Computer Station, in shaping this book. The contribution of the Publication Department, NCERT, in bringing out this book is also duly acknowledged.

The Council also acknowledges the efforts of Neerja Rashmi, *Professor*, DESS, NCERT; M.V. Srinivasan, DESS, NCERT; Jaya Singh, DESS, NCERT; Pratima Kumari, *Associate Professor*, DESS, NCERT; Ashita Raveendran, *Associate Professor*, PMD, NCERT; Sabita Patnaik, *PGT Economics*, DMS, RIE, Bhubaneshwar; Anita Raveendra *PGT Economics*, DMS, RIE, Mysore, towards the rationalisation of content of the textbook.

CONTENTS

<i>Foreword</i>	<i>v</i>
<i>Rationalisation of Content in the Textbooks</i>	<i>vii</i>
Chapter 1 : Introduction	1
Chapter 2 : Collection of Data	9
Chapter 3 : Organisation of Data	22
Chapter 4 : Presentation of Data	40
Chapter 5 : Measures of Central Tendency	58
Chapter 6 : Correlation	74
Chapter 7 : Index Numbers	90
Chapter 8 : Use of Statistical Tools	105
APPENDIX A : GLOSSARY OF STATISTICAL TERMS	114
APPENDIX B : TABLE OF TWO-DIGIT RANDOM NUMBERS	117

THE CONSTITUTION OF INDIA

PREAMBLE

WE, THE PEOPLE OF INDIA, having solemnly resolved to constitute India into a ¹**[SOVEREIGN SOCIALIST SECULAR DEMOCRATIC REPUBLIC]** and to secure to all its citizens :

JUSTICE, social, economic and political;

LIBERTY of thought, expression, belief, faith and worship;

EQUALITY of status and of opportunity and to promote among them all;

FRATERNITY assuring the dignity of the individual and the ²[unity and integrity of the Nation];

IN OUR CONSTITUENT ASSEMBLY this twenty-sixth day of November, 1949 do **HEREBY ADOPT, ENACT AND GIVE TO OURSELVES THIS CONSTITUTION.**

1. Subs. by the Constitution (Forty-second Amendment) Act, 1976, Sec.2, for "Sovereign Democratic Republic" (w.e.f. 3.1.1977)
2. Subs. by the Constitution (Forty-second Amendment) Act, 1976, Sec.2, for "Unity of the Nation" (w.e.f. 3.1.1977)