GLOBAL POPULATION BLOW-UP
AND AFTER
FROM THE DEMOGRAPHIC REVOLUTION
TO
A KNOWLEDGE-BASED SOCIETY

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HOW MANY PEOPLE ARE THERE ON EARTH?

NUMBERS OF A GENERA DEPENDING ON BODY WEIGHT
WORLD POPULATION FROM 2000 BC TO 3000 AD

1 – DATA OF BIRABEN, 2 – BLOW-UP, 3 – DEMOGRAPHIC TRANSITION, 4 – STABILIZED POPULATION
5 – ANCIENT WORLD, 6 – MIDDLE AGES, 7 – MODERNITY, 8 – RECENT HISTORY, ↑ – THE PLAGUE 1348
GLOBAL DEMOGRAPHIC TRANSITION

ANNUAL GROWTH AVERAGED OVER A DECADE
1 – DEVELOPED AND 2 – DEVELOPING COUNTRIES
LINEAR, EXPONENTIAL AND HYPERBOLIC GROWTH

\[
\frac{dN}{dT} = A \quad N = AT \\
\frac{dN}{dT} = \frac{N}{\tau} \quad N = N_0 \exp \frac{T}{\tau} \\
\frac{dN}{dT} = \frac{N^2}{C} \quad N = \frac{C}{T_1 - T}
\]

REGULARIZING GROWTH AT THE SINGULARITY: \( T_1 \quad \frac{dN}{dT} = \frac{C}{(T_1 - T)^2} \quad \frac{dN}{dT} = \frac{C}{(T_1 - T)^2 + \tau^2} \)

INSTANTANEOUS EXPONENT IS THE AGE OF THE EPOCH: \( T_E = T_1 - T \)

LINEAR AND HYPERBOLIC GROWTH ARE SELF-SIMILAR.
PRINCIPAL RESULTS OF THE THEORY

• POPULATION IS THE DOMINANT VARIABLE, DETERMINING THE GROSS PATTERN OF GROWTH, THE PARAMETER OF ORDER. THE LARGE PARAMETER $\kappa$ DETERMINES ALL RESULTS OF THEORY.

• THIS IS EXPRESSED AS THE PRINCIPLE OF THE DEMOGRAPHIC IMPERATIVE, INSTEAD OF THE POPULATION PRINCIPLE OF MALTHUS, BY WHICH GROWTH IS LIMITED BY RESOURCES.

• GROWTH IS CULMINATED BY THE DEMOGRAPHIC TRANSITION. IT IS SIMILAR TO A SHOCK WAVE IN SUPersonic FLOW AND ITS DURATION IS LIMITED BY THE ‘MICROSCOPIC’ TIME OF THE PHENOMENOOGICAL THEORY – THE HUMAN LIFE SPAN.

• GLOBAL POPULATION WILL BE LIMITED AT 10 – 12 BILLION AND THE NUMBER OF PEOPLE, WHO EVER LIVED IS ~ 100 BILLION.

• INTERNAL FACTORS STABILIZE GROWTH, SEEN IN THE GLOBAL CULTURAL AND DEMOGRAPHIC CYCLES INDICATING STABILITY. IT ARE THESE FACTORS, WHICH DETERMINE THE ‘LIMITS OF GROWTH,’ AND NOT RESOURCES OR THE ENVIRONMENT.
FORECASTS OF THE THEORY

• AFTER THE TRANSITION AN EPOCH OF EQUILIBRIUM WITH A ZERO GROWTH RATE IS TO BE EXPECTED.

• UP TO TRANSITION INEQUALITIES AND INEQUITIES ARE TO GROW, WITH A CRISIS OF FAMILY AND GOVERNANCE. AFTER THE TRANSITION A TRANQUIL PHASE MAY BE EXPECTED.

• DEVELOPED COUNTRIES ARE NOW FACING THE TFR CRISIS. HOW WILL IT BE RESOLVED IN THE FUTURE?

• CAN WE EXPECT LESS STRESS AND MILITANCE IN THIS NEW STAGE OF HISTORY. WILL THE QUALITY OF LIFE IN A KNOWLEDGE SOCIETY BECOME THE FINAL DESTINY OF MAN?
PROBLEMS OF META-ECONOMICS

• RIGHT FROM THE BEGINNING, GROWTH OF MANKIND WAS DETERMINED BY GENERALIZED INFORMATIONAL FACTORS, WHICH MODERATED SOCIAL EVOLUTION AND ECONOMIC DEVELOPMENT.

• THE GLOBAL SYSTEM IS FAR FROM EQUILIBRIUM, – HENCE GROWTH OF INEQUITITIES. HOW CAN WE THEN RECONCILE THE THEORY OF GROWTH WITH VALRASIAN ECONOMICS, BASED ON THE CONCEPT OF A SLOWLY CHANGING STATE IN EQUILIBRIUM?

• WILL THE FUTURE BE DETERMINED BY THE ‘SOFTWARE’ – CULTURE OF AN INFORMATION DOMINATED WORLD, RATHER THAN ITS HARDWARE?
MAIN PUBLICATIONS


WE SHOULD THANK GOD THE CREATOR FOR ALL THAT IS SIMPLE IS TRUE, AND THAT ALL THINGS COMPLICATED ARE NOT TRUE.

Grigorii Skovoroda

18th century Ukranian philosopher