Press Release

(***embargo*** *until 6 am on Wednesday, Aug. 19*)

New Shoresh Institution study
by Prof. Dan Ben-David and Prof. Ayal Kimhi

Education quality and future wages

The impact of math matriculation quality in the periphery and center of Israel

main findings:

- The number of matriculation (bagrut) study units in mathematics (a higher number of units indicates a higher level of study) is found to have a much greater impact on future earnings than the number of matriculation units in other subjects.
- Compared with pupils from the periphery, pupils from the center
  - have higher math matriculation scores
  - and earn higher wages.
- The higher the share of individuals continuing to academic studies, and the higher that level of study, *the smaller* the wage gap between pupils from the center and from the periphery.

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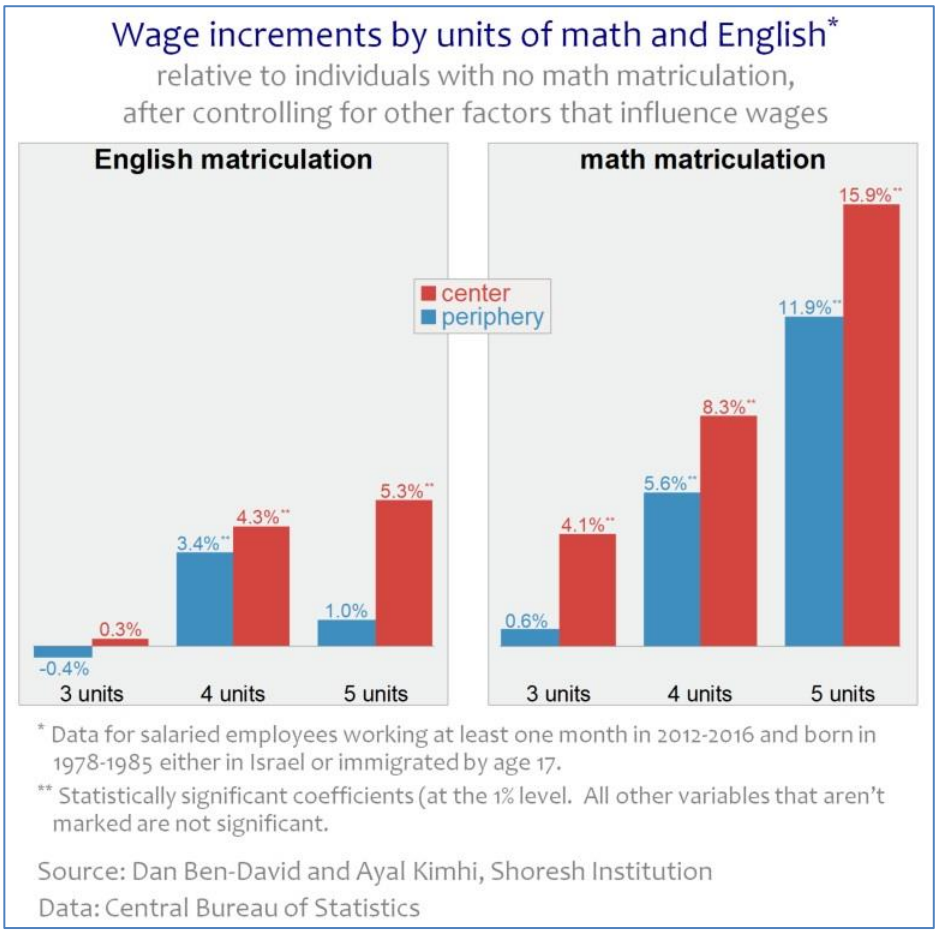
Why do individuals who studied in periphery schools earn less than those from schools in central Israel (the *center*)? The new Shoresh Institution for Socioeconomic Research study by Prof. Dan Ben-David and Prof. Ayal Kimhi examines the root (*shoresh*) determinants of the periphery-center wage gaps to gain a better understanding of education's role. Among the studies key findings:

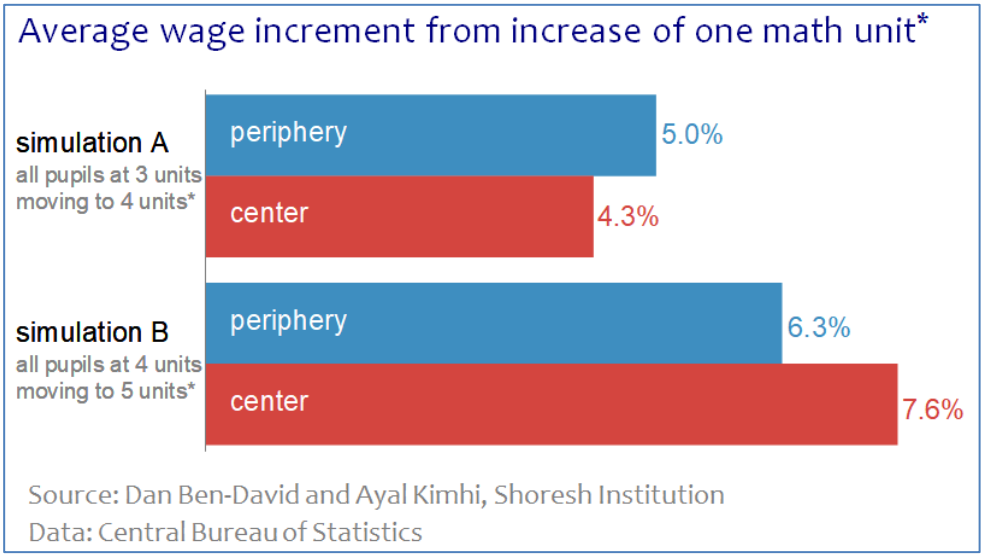
The subject taught in high school with the highest impact on future wages is mathematics

1. The statistical analysis in the Shoresh study enabled the researchers to isolate the individual contributions of dozens of variables that have an impact on wages ranging from education characteristics, employment sector attributes, family characteristics, socioeconomic background, and peripherality level. By statistically isolating the impact of math, after netting out additional effects from the remaining variables, Ben-David and Kimhi found that math matriculation studies contribute more to future wages than any other subject of study in high school.
   - The higher the number of math units in school, the higher the subsequent wages.
   - Math studied in high school raises wages more for pupils in the center than for those in the periphery, and its effect is particularly large at the five-unit level in math.
   - Wages of pupils who matriculated from the center who studied math at the highest level were 16% higher than those who did not take the math matriculation exam, while the corresponding figure for pupils who matriculated from the periphery was only 12%.
   - The contribution of English matriculation studies to future wages is substantially lower than that of math matriculation studies.



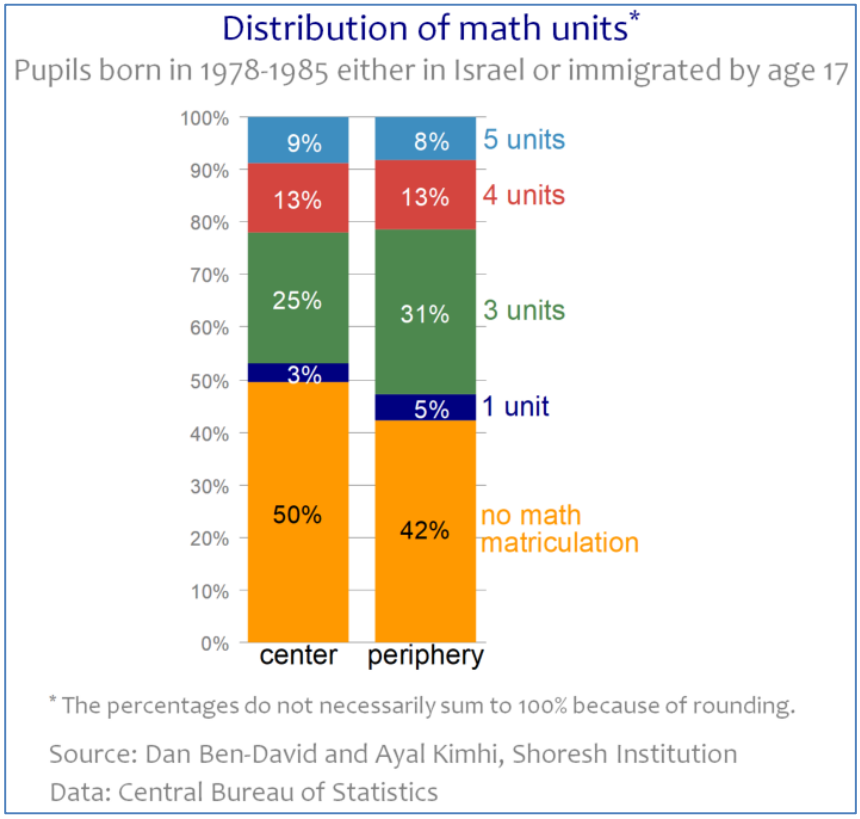
Studying a higher level of math in high school increases future wages

2. Simulations by Professors Ben-David and Kimhi that were carried out separately for pupils from the center and periphery show that
   - if pupils who studied math at the three-unit level would have increased their math level to four units, their wages would have risen by 4.3% if they studied in the center and by 5.0% if they studied in the periphery.
   - if pupils who studied math at the four-unit level would have increased their math level to five units, their wages would have risen by 7.6% if they studied in the center and by 6.3% if they studied in the periphery.



There is little difference between the center and periphery in the share of pupils studying high school math at the highest levels

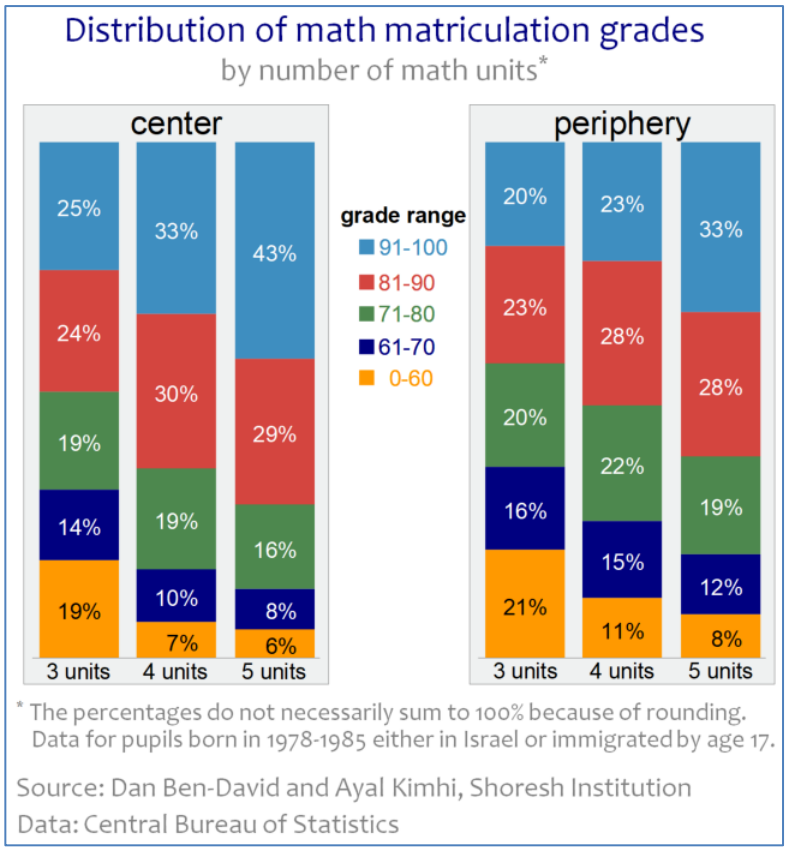
3. The Shoresh Institution study finds negligible difference between the center and periphery in the share of pupils studying math at the highest levels (four and five units).



High school math scores are higher in the center than in the periphery

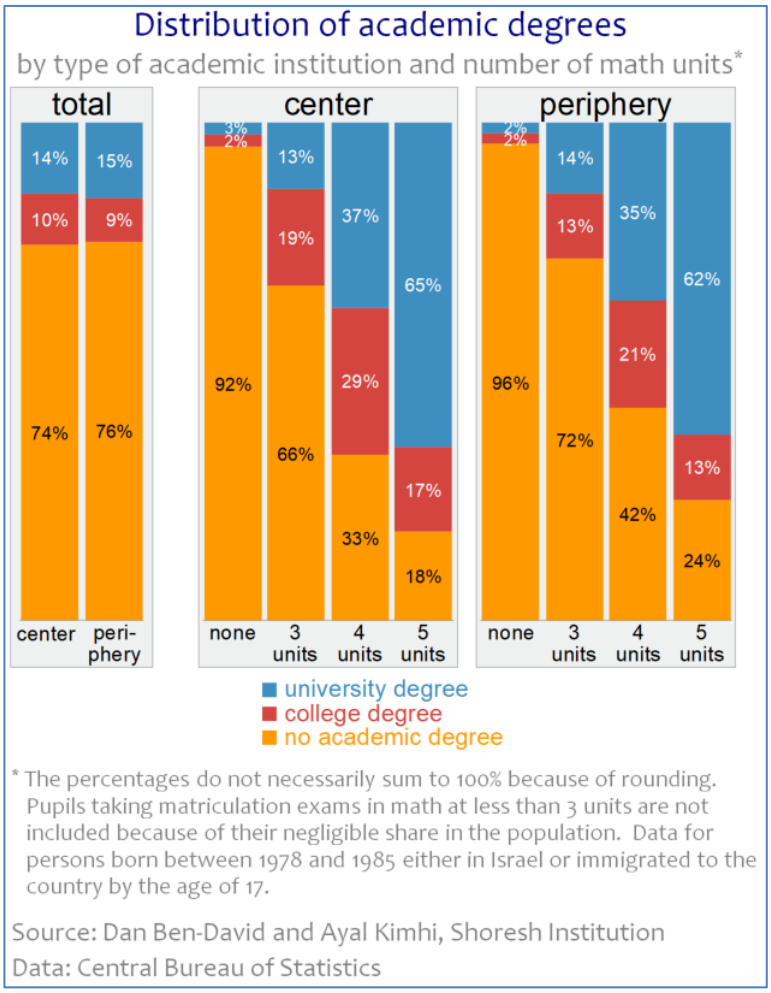
4. While the share of pupils studying math at the highest levels in the center and periphery is fairly similar, the Shoresh study finds that
   - the scores of pupils in the center are generally higher, on average, than those of pupils in the periphery.
   - Higher grades in the center of the country are also evident at each math level.

   Professors Ben-David and Kimhi state that this may be due to less-careful screening of pupils in the periphery, or to lower levels of instructional quality in those schools.



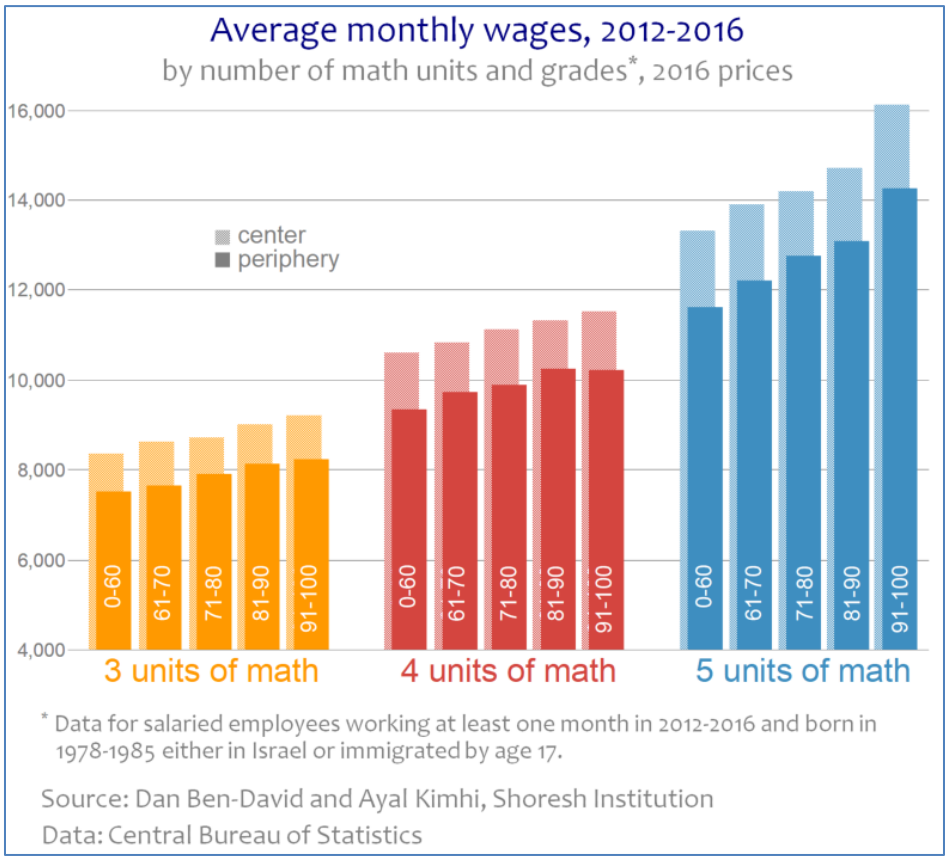
The share of academic degree holders rises substantially with the level of math studied

5. There is no substantial difference between the percentage of degree holders among pupils from the center and pupils from the periphery, or in the degree distribution between universities and colleges. However, the Shoresh study finds that the share of degree holders rises substantially with the level of math studied.
   - There is a greater share of academic graduates among persons who studied four units of math than among those who completed only three units. That share is even higher for those who studied five units of math.
   - Moreover, an increase from four to five units of math is accompanied by an even steeper rise in the percentage of university degrees, at the expense of college degrees. This distinction can be seen among pupils from both the center and the periphery.
   - Among pupils from the center who studied math at the five-unit level, a larger proportion of degrees were earned at universities than among pupils from the periphery who studied math at the five-unit level.



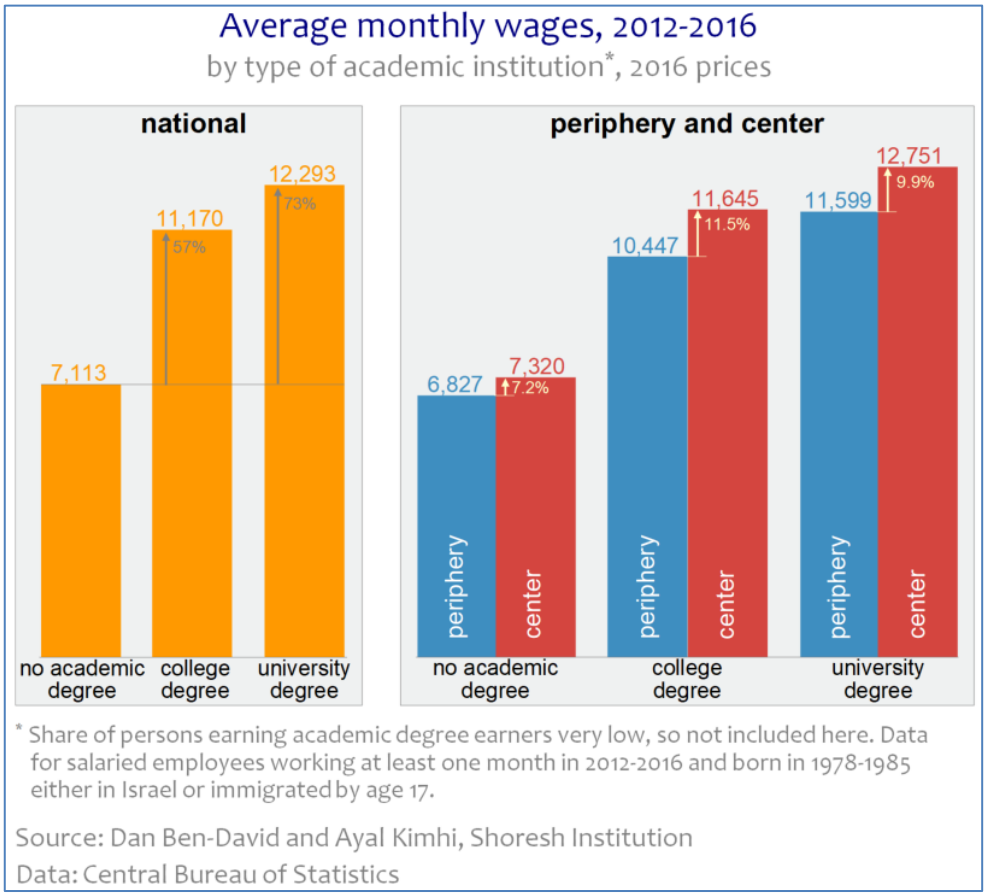
Pupils scoring poorly at each math level earn more than those who excel at the next level below

6. Professors Ben-David and Kimhi find that the impact of math study on future wages is strongly related to the level of math studied in high school as well as pupil achievements.
   - The higher the grade, the higher the wage, and this is especially true for those who studied math at the five-unit level in both the center and the periphery.
   - Pupils who barely passed the math matriculation exam – or even failed it – tended to earn higher future wages than pupils who excelled at the next level below. This outcome was found in both the center and the periphery.
   - The wage gap between pupils from the center and pupils from the periphery is visible here as well, and it's relatively stable across the test score distribution.



Academic degrees further raise wages, more so for graduates from the higher-quality higher-education institutions

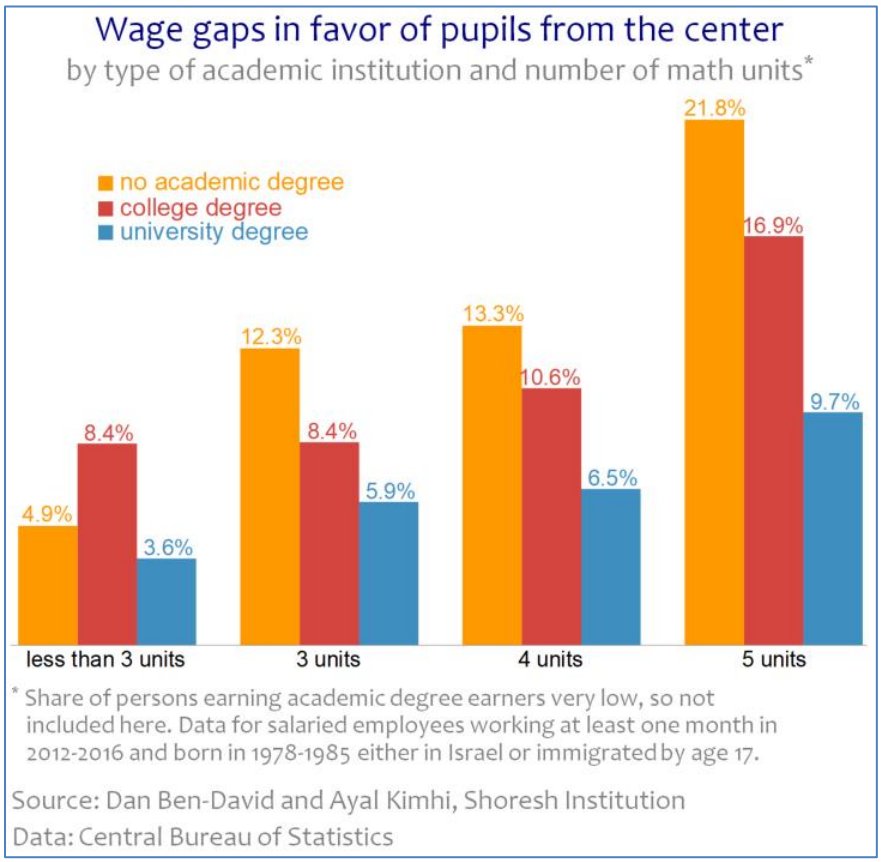
7. Academic degree holders earn dozens of percentage points more than do those without such degrees.
   - University graduates earn more than college graduates.
   - Ben-David and Kimhi find that gaps between pupils from the center and those from the periphery are wider among academic degree holders, though the reason for this is that the wages of non-degree holders are much lower overall. This disparity is similar for university and college graduates.



Academic study narrows wage gaps between pupils from the center and the periphery

8. The Shoresh Institution study finds that the attainment of an academic degree reduced the wage disparity at each level of high school math (for all those studying at three levels and up). When the academic degree was obtained from a university rather than a college, the gap narrowed even further.

   According to Ben-David and Kimhi, these findings suggest that higher-level academic study more effectively bridges wage gaps that emerge at the upper secondary level. In other words, university studies would appear to be more beneficial than college studies in closing the wage gap between pupils from the center and pupils from the periphery.



Professors Dan Ben-David and Ayal Kimhi conclude that gaps in the quantity and quality of education play a significant role in the size of wage disparities. The lower the level of study in the periphery relative to the center, the harder it is to gain admission to high-level academic study programs, and to successfully complete them.

One of the main conclusions from the Shoresh Institution study is that schools in the periphery need to more strongly emphasize math study, as pupil performance in math is a better predictor of labor market achievement than is any other matriculation subject.

Ben-David and Kimhi strongly recommend implementation of a policy equalizing the quality of study in schools in the periphery with those of the center. Such a policy would substantially contribute to a narrowing of the wage gaps. In light of the poor mastery of core subjects demonstrated by Israeli pupils – in general – compared with those of other developed nations a comprehensive structural reform is urgently needed in the education system to substantially upgrade the level of education throughout the country, and particularly in the periphery.

The Shoresh Institution for Socioeconomic Research, headed by Professor Dan Ben-David, is an independent, non-partisan policy research center providing evidence-based analyses of Israel's economy and civil society. The Shoresh Institution informs Israel's leading policymakers and the general public, both inside and outside the country, through briefings and accessible publications on the source, nature and scope of core issues facing the country, providing policy options that ensure and improve the well-being of all segments of Israeli society and create more equitable opportunities for its citizens.

For details, or to arrange an interview, please contact the study's authors:

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