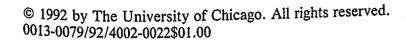# Benefits of Women's Education within Marriage: Results for Israel in a Dual Labor Market Context*

Shoshana Neuman and Adrian Ziderman
Bar Ilan University

Introduction

In the quarter-century following Gary Becker's now-classic presentation of the human capital model in terms of formal schooling and training on-the-job, the approach has been extended with telling effect into numerous additional fields of application—a tribute to the fecundity of the original formulation. One development of some particular interest has been the focus on decision making within the household unit rather than on the individual, an approach that has opened a new field of research in the economics of marriage and the family.[1] Indeed, adopting the wider focus of the household rather than the individual decision maker, Lee Benham has shown that, for the United States at least, wife's education has a positive effect on husband's earnings capacity.[2] Putting aside for the moment alternative explanations in terms of mate sorting,[3] Benham's finding suggests that a person's own labor-market productivity (P_o) is a function (F) not only of his own human capital attainments (H_o) but also of those of this spouse (H_s). Formally, $P_O = F (H_O, H_S)$, where $\delta P_O/\delta H_S > 0$. Thus, the effective human capital stock of a married person is a positive function of the human capital of each marriage partner. Benham sees these positive cross-productivity effects of education within marriage as a particularly focused form of the transfer of the benefits of education by (particularly, nonmarket) association.[4] He argues that these benefits may arise in at least three ways: (1) by extending information and advice, thereby providing a close substitute for a person's own formal education; (2) by helping the person acquire specific skills; and (3) by helping the person acquire general skills related to information acquisition and assimilation and coping with change.[5] Marriage, of course, offers both partners greater opportunities for sharing in the pecuniary benefits of

association and, therefore, a larger incentive for doing so than is available in other forms of nonmarket association.

But there are particular labor-market contexts in which such positive cross-productivity effects of wife's education on husband's earnings are not observed. This is suggested by the results of a recent application of this approach to small family businesses. Using data for Hong Kong, Yue-chim Wong argues that cross-productivity effects are stronger for entrepreneurial families (where both spouses work in the family business) than for wage-employed families.[6] The question is, would cross-productivity effects also differ across broad occupational categories? The purpose of this article is to probe these issues, using Israeli data.

In an earlier article, we suggested that the dual labor market model may be relevant for Israel; while human capital variables were shown to enhance male earnings within the designated primary labor market, they failed to do so in the secondary sector.[7] In a similar vein, and following Benham, wife's education would be expected to exert a positive influence on husband's earnings in primary labor markets. However, for secondary labor markets, where own human capital attributes generally do not result in enhanced earnings, it might be surmised that husband's earnings would not show any relationship to wife's educational level. To test this proposition, we used the original data set from the previous article. As before, we decomposed the male sample into primary and secondary labor market sectors. Employing a method used by Robert McNabb and George Psacharopoulus,[8] the allocation to market sector was based on occupational prestige scores, and workers in low prestige occupations (composing some 29% of the sample) were assigned to the secondary labor market sector.[9]

Earnings functions of the Mincer type were estimated for both primary and secondary labor markets using a specification that included variables relating to spouse's education and to the number of years married. Our results (reported below), while supporting the notion of a positive cross-productivity effect of wife's education on husband's earnings in the primary sector, found no such effect for the secondary sector. One may be skeptical about the validity of the dual labor market model, which remains the subject of some controversy in the literature. Even so, we hope that our findings, which show that wife's human capital augments husband's earnings in some occupational categories (of higher prestige) but not in others (with low status), will be of interest also to those who do not share our dual labor market interpretation of the results.

Data

This study draws on data tapes of the Israel Labor Mobility Survey, conducted in 1974 by the Central Bureau of Statistics; the survey cov-

ered both Jews and Arabs. For the present analysis a subsample of Jewish married male full-time workers was drawn from the data base. We estimated a series of earnings functions for the primary and secondary labor market sectors, respectively, in which the log of individual earnings for Jewish married male full-time workers (with wife present) is run against three sets of explanatory variables, the first two of which were included in the regression model specified in the earlier article: (1) Traditional human capital related variables: years of schooling (SCH), years of labor market experience (EXP, defined as age − SCH − 6), EXP^2 (EXP squared), an interaction variable (EXP.SCH), and number of years employed at present place of work (PRESWK). (2) Control variables: years of residence in Israel (RESID), weeks worked in the past year (WEEKS), hours worked per week (HOURS), a dummy variable relating to ethnic origin (ETHNIC, Oriental = 1, Western = 0),[10] and a series of dummy variables for economic sector.[11] (3) Characteristics of marriage variables: variables were added, in alternative regression specifications, relating to duration of marriage, wife's schooling, and various interaction terms that included these variables. The variables used in the regression runs reported in the tables are: years of marriage (MARR), a dummy variable relating to wife's level of schooling (WSCH = 1 if wife had at least completed final grade of high school and = 0 if otherwise), and interaction terms WSCH.MARR and SCH.MARR.

The hypothesis to be tested is that cross-productivity effects of wife's education will be evident in primary labor markets but absent in secondary markets. Just as own human capital investments remain generally unrewarded in secondary labor markets, so spouse's human capital stock will not contribute to own earnings, via the cross-productivity processes of association as outlined above.

Main Findings
Our central results are presented in table 1. They confirm that the traditional human capital variables for the worker are positive and significant (except for EXP.SCH) in primary labor markets, while all coefficients relating to own human capital are nonsignificant for the secondary sector, as predicted by the dual labor market model. However, our focus is on the characteristics of marriage variables.

In regression model (1) the two variables relating to wife's level of schooling and duration of marriage, respectively, are of interest for testing the cross-productivity model. While MARR is insignificant in both the primary and secondary sectors, WSCH is positive and highly significant in the primary sector, though not significant in the secondary. A well-educated wife, who has completed at least high school, raises her husband's productivity (and earnings) by about 9% if he works in the primary sector but does not enhance earnings if he is

TABLE 1

EARNINGS FUNCTIONS (OLS): PRIMARY AND SECONDARY LABOR MARKETS
(Dependent Variable: Log Annual Male Earnings)

INDEPENDENT VARIABLES	REGRESSION MODEL (1)				REGRESSION MODEL (2)			
	Primary Sector		Secondary Sector		Primary Sector		Secondary Sector	
	b	t	b	t	b	t	b	t
Human capital variables:								
SCH	.0420	3.03	−.0223	−.90	.0513	3.54	−.0177	−.69
EXP	.0183	1.78	−.0013	−.08	.0134	1.19	.0018	.11
EXP^2	−.0003	−2.66	−.0002	−.97	−.0003	−2.53	−.0002	−.95
EXP.SCH	−.0004	−1.08	.0007	1.08	−.0001	−.16	−.0003	.35
PRESWK	.0119	5.03	.0025	.71	.0123	5.20	.0026	.76
Control variables:								
RESID	.0030	1.83	.0080	3.16	.0030	1.82	.0081	3.17
WEEKS	.0323	12.26	.0361	10.04	.0327	12.45	.0363	10.02
HOURS	.0093	3.54	.0031	.67	.0092	3.51	.0028	.60
ETHNIC	−.0920	−2.41	−.1178	−2.25	−.0984	−2.58	−.1168	−2.22

	b	t	b	t	b	t	b	t
Economic sector:								
IND	.1745	1.17	.2865	3.07	.2202	1.46	.2809	3.00
ELEC	.1773	1.00	*	*	.2174	.43	*	*
CONSTR	.1339	0.86	.2850	2.64	.1884	1.20	.2783	2.57
COMM	.0455	0.29	.1796	1.61	.0938	.59	.1836	1.63
TRANS	.0902	0.58	.2483	2.02	.1439	.93	.2351	1.89
FINANCE	.1824	1.17	*	*	.2364	1.50	*	*
PRIVATE	.0276	0.17	.2524	1.70	.0696	.43	.2426	1.62
Characteristics of marriage variables:								
WSCH	.0857	2.03	.0267	.27	−.0528	−.69	−.0507	−.30
MARR	.0007	.22	−.0001	−.29	.0089	1.10	−.0055	−.79
WSCH.MARR	...	...	...	...	.0088	2.15	.0044	.59
SCH.MARR	...	...	...	...	−.0011	−1.38	.0005	.63
Constant	6.8690	23.39	7.3888	17.78	6.7785	22.95	7.3659	17.54
R^2	.4568		.4764		.4629		.4795	
N	488		198		488		198	

NOTE.—b = coefficient; t = t-statistic; * = no observations in these categories. The following variables are included in the constant term: ethnic origin—western; economic sector—agriculture; wife's education—less than 12 years of schooling.

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confined to the secondary sector.[12] These results confirm Benham's for the U.S. labor market as a whole.

However, some commentators have treated Benham's findings with caution, arguing that they are equivocal. His findings are also consistent with an explanation in terms of mate sorting.[13] The mate sorting approach would indicate that more able men (thus with higher earnings) seek to marry women with desirable traits such as high education; thus, any measured correlation between wife's education and husband's earnings may be statistical only rather than causative, as the line of causation runs through husband's ability rather than directly between wife's education and husband's earnings. This criticism also could be relevant in the present case.

We argue that a good education is regarded as a desirable trait in a wife in primary labor markets where workers are more educated on average (10.4 mean years of schooling) but not in secondary markets where workers' educational attainments are typically lower (7.2 years of schooling, on average).[14] A less well-educated worker, even though he is able, might feel threatened by a wife whose education is better than his. Thus, the process of mate sorting described above is expected to take place in primary labor markets but not in secondary ones. The statistical correlation between wife's education and own ability that might explain the statistical significance of wife's schooling on earnings would be at work in primary labor markets only. This, in turn, could account for the differences in the results between primary and secondary sectors for regression model (2) as well as those reported in note 12.

We attempt to deal with the issue of sorting by adding two interaction variables, WSCH.MARR and SCH.MARR, to the earnings function. These results (regression model [2]) constitute the central findings of this article. While both wife's schooling and duration of marriage do not, alone, have a significant effect on husband's earnings in either sector, the interaction term WSCH.MARR is positive and highly significant for primary-sector workers but not for secondary-sector workers.[15] This suggests that the schooling of a well-educated wife exerts a positive influence on her husband's earnings, which increases with years of marriage.[16] While this is a plausible result for the cross-productivity model, it is not predicted by the mate-sorting approach. Finally, given the high correlation between spouses' education, we included an interaction term of MARR with own schooling (SCH.MARR) to avoid biasing the WSCH.MARR coefficient.

In sum, the lack of significance on the WSCH variable alone, and more particularly the positive coefficient on the interaction of WSCH and duration of marriage in the primary sector, indicates against an explanation in terms of mate sorting. We see these results as a confirmation of the presence of a positive cross-productivity effect of wife's education on husband's earnings when the latter is attached to the

primary labor market sector. In contrast, regression model (2) results that relate to secondary labor markets are highly compatible with the type of outcomes that would be expected in secondary labor markets. The own human capital variables are all nonsignificant, as is the WSCH.MARR interaction term, indicating that, unlike in the primary-labor-sector case, wife's human capital does not contribute to husband's labor-market effectiveness.[17]

Selectivity Bias and Other Statistical Issues

Our central findings were presented in the preceding section. In this section we offer further tests of the robustness of our main, regression model (2), results.[18] First we take account of the possibility that the estimates for regression model (2) may be affected by selectivity bias (even though in the dual labor model there are constraints on the freedom of the worker to choose which market sector to join). It is possible that the random component of the earnings function is correlated with the sectoral choice equation. If this were the case, any direct estimation of the earnings functions, without including the conditional mean of the error as an explanatory variable, would result in biased estimates. We attempted to correct our sector-specific earnings equations for selection bias using the two-stage estimation procedure suggested by J. J. Heckman.[19]

We first estimated a logit function determining the choice between primary and secondary sectors based on own schooling, wife's schooling, age, and years of residence in Israel. Then, the estimated parameters of the logit function were used to construct a correction factor, lambda (the inverse of Mill's ratio), which was entered as a regressor in the earnings functions that were now reestimated.

The coefficients of the correction factors (lambda) in both the primary and the secondary sectors were insignificant ($t = 1.22$ for the primary and $t = .01$ for the secondary sector), which means that there is no self-selection to labor-market sector. The use of separate sector-specific functions is justified.[20]

Finally, we consider the possibility that the variable measuring number of weeks worked (WEEKS) may not be exogenous: workers with high wage rates may tend to work more weeks in the year. Since the dependent variable is annual earnings, it seemed appropriate to add WEEKS as an explanatory variable; however, we recognized that including WEEKS in the regression models, without taking account of its possible endogeneity, may create some perverse effects on other variables. One way of dealing with this statistical problem is to adopt a two-stage least-squares approach, treating both annual earnings and WEEKS as endogenous variables. The results based on regression model (2) are presented in table 2, as regression model (3).

Compared with regression model (2) results, the differences are minor. The main change is in the WEEKS variable: previously positive

TABLE 2

EARNINGS FUNCTIONS (2SLS): PRIMARY AND SECONDARY LABOR MARKETS
(Dependent Variable: Log Annual Male Earnings)

INDEPENDENT VARIABLES	REGRESSION MODEL (3)			
	Primary Sector		Secondary Sector	
	b	*t*	*b*	*t*
Human capital variables:				
SCH	.0465	2.83	−.0088	−.30
EXP	.0036	.22	.0120	.59
EXP^2	−.0002	−1.24	−.0003	−1.24
EXP.SCH	.0002	.31	−.00007	−.08
PRESWK	.0108	3.49	.0049	1.13
Control variables:				
RESID	.0036	1.90	.0076	2.68
WEEKS	.0547	2.18	.0148	.72
HOURS	.0083	2.78	.0032	.63
ETHNIC	−.0885	−2.09	−.1245	−2.15
Economic sector:				
IND	.2425	1.48	.2611	2.50
ELEC	.2774	1.37	*	*
CONSTR	.2567	1.38	.2170	1.65
COMM	.1077	.63	.1625	1.30
TRANS	.1827	1.06	.1292	.77
FINANCE	.2430	1.44	*	*
PRIVATE	.0624	.36	.1144	.57
Characteristic of marriage variables:				
WSCH	−.1078	−1.04	.0145	.07
MARR	.0103	1.17	−.0071	−.91
WSCH.MARR	.0113	2.17	.0003	.04
SCH.MARR	−.0014	−1.54	.0006	.74
Constant	5.8545	5.34	8.2728	8.64
R^2	.3199		.2330	
N	488		198	

NOTE.—*b* = coefficient; *t* = *t*-statistic; * = no observations in these categories. The following variables are included in the constant term: ethnic origin—western; economic sector—agriculture; wife's education—less than 12 years of schooling.

and highly significant in both sectors, it now loses its significance in the secondary sector (indicating that it is endogenous in that sector) and is larger, though of lower significance, in the primary sector. However, no major change is effected in the coefficients on the WSCH.MARR variable, which remains significant in the primary sector only, the rate of return rising from 0.88% for each year of marriage to 1.13%.[21]

Discussion

It is now well accepted in human capital literature that the benefits stemming from educational investment extend beyond those directly

emanating from enhanced wages. Thus, even for educated married women not attached to the labor market, benefits from education are demonstrated in terms of greater efficiency in housework and managing the home and in the quality of child care and rearing. Measured private rates of return to female educational investment that failed to take account of these benefits within the household context would understate true rates of return. Benham has argued that there are likely to be additional labor-market benefits of female education through an augmentation of husband's earnings—a highly focused instance of the economic benefits stemming from association.

In this article we have suggested that such cross-productivity effects may not be forthcoming in all labor-market contexts; for some occupational groupings these effects may be strong, and for others weak or absent. This was found to be the case in Israel for occupational groupings relating to higher-status and low-status occupations; cross-productivity effects were positive for the former group but not significant for the latter. We interpret these two groups as corresponding to workers attached to primary and secondary labor markets, respectively.

In a situation where the labor market is characterized by duality, the wife's human capital stock as well as the husband's can be seen as augmenting the husband's earnings in the primary sector (a finding in line with Benham's results for the United States); however, for husbands attached to the secondary sector, neither husband's nor wife's human capital has any significant effect in raising husband's earnings. These results attest to the presence of positive cross-productivity effects of wife's education on husband's earnings in the primary but not in the secondary labor-market sector, a finding that is consistent with the general implications of the dual labor-market model.

The question now arises whether, for families where the husband is attached to the secondary sector, the household benefits of wife's education, too, are zero (or at least significantly lower than in the primary sector), as is the case for labor-market benefits (resulting either from husband's higher productivity or from the cross-productivity effects of wife's education).

Such a possibility may go some way toward offering a partial explanation for one of the dominant characteristics of the dual labor market model—the extremely low intersector mobility between primary and secondary sectors, and the consequent durability of the latter sector: why attachment to the secondary labor-market sector is so strong, given the clear benefits available from moving to the primary sector. Evidently, this obduracy is the result of negative, intergenerational, behavioral traits and ingrained attitudes toward the world of work (reinforced by the low expectations of secondary-sector employers and by the type of employment offered). Traditionally, economists

have looked to educational investments as a means of dealing with the problem of the low-paid and the cycle of poverty not only by raising potential productivity and wages but also, over the longer term, by changing individual attitudes, expectations, and motivations. Dual labor-market theorists, on the other hand, claim that educational investments will be ineffective in leading to higher wages for those attached to secondary labor markets; it is also possible that these longer-term, attitudinal effects of education will be circumvented if women who have received additional education are unable as wives and mothers to transmit improved attitudes or values to other members of the household, particularly the younger ones. In such situations, these low household benefits of wife's education would constitute a factor on the supply side, accounting for the durability of secondary labor markets.

Notes

* We acknowledge our thanks to Shoshana A. Grossbard-Shechtman, San Diego State University, who suggested that research along the lines pursued in this article would be fruitful. Adrian Ziderman was affiliated with the World Bank when this work was being completed. The findings of this study are our responsibility and should not be attributed to the institutions with which we are associated.

1. See, e.g., Theodore Shultz, ed., *Economics of the Family* (Chicago: University of Chicago Press, 1974).

2. Lee Benham, "Benefits of Women's Education within Marriage," *Journal of Political Economy* 82 (March–April 1974): S57–S71.

3. See G. S. Becker, "A Theory of Marriage," *Journal of Political Economy* 81 (July–August 1973): 813–46.

4. The theory of the benefits of association can be extended to include other dimensions of the effects of wife's attributes and marriage on husband's earnings; see S. A. Grossbard-Schechtman and S. Neuman, "Cross Productivity Effects of Education and Origin on Earnings: Are They Really Reflecting Productivity?" in *Handbook of Behavioral Economics*, ed. R. F. Frantz and J. Gerber (Greenwich, Conn.: Jai Press, 1990), 2:129–49. This paper confirms the applicability of Benham's approach to Israel.

5. Benham, p. 376.

6. See Yue-chim Wong, "Enterpreneurship, Marriage and Earnings," *Review of Economics and Statistics* 68 (1986): 603–99. These particular findings, however, may be suspect, because of data inadequacies; see A. Ziderman, "Testing for Cross Productivity Effects of Education among Entrepreneur Families" (1989, typescript).

7. S. Neuman and A. Ziderman, "Testing the Dual Market Hypothesis: Evidence from the Israel Labor Mobility Survey," *Journal of Human Resources* 21 (1986): 230–37. The classic presentation of the dual labor market viewpoint is given in Peter Doeringer and Michael Poire, *Internal Labor Markets and Manpower Analysis* (Lexington, Mass.: Heath, 1971).

8. Robert McNabb and George Psacharopoulos, "Further Evidence of the Relevance of the Dual Labor Market Hypothesis for the United Kingdom," *Journal of Human Resources* 16 (1981): 442–48.

9. Tyree's occupational prestige ratings for Israel were used; see Andrea Tyree, "Occupational Socioeconometric Status, Ethnicity, and Sex in Israel:

Considerations in Scale Construction" (Hebrew), *Megamot* 27 (September 1981): 7–21. Workers were assigned to primary or secondary labor markets on the basis of occupational prestige scores rather than earnings, as is the case in many other studies, in order to avoid problems of truncation bias, as discussed in G. Cain, "The Challenge of Segmented Labor Market Theories to Orthodox Theory: A Survey," *Journal of Economic Literature* 14 (1976): 1215–57. The correlation between earnings and prestige scores is not high. See Neuman and Ziderman for an account of, and justification for, the method used.

10. An Oriental Jew is defined as born in Asia or Africa (except Israel or South Africa) or, if native-born Israeli, one whose father was born in Asia or Africa (except Israel and South Africa). A Western Jew is defined as born in Europe, North or South America, Australia, or South Africa, or one whose father was born in those regions. For second (and succeeding) generations, native-born Israelis are included in the Western group, given the predominantly Western composition of the Jewish population in Israel (then under the British Mandate) two generations ago.

11. The economic sectors are: industry (mining and manufacturing)— IND; electricity and water—ELECT; construction (building and public works)—CONSTR; commerce, restaurants, and hotels—COMM; transport, storage, and communications—TRANS; financing and business services— FINANCE; personal and other services—PRIVATE. Agriculture, forestry, and fishing are included in the constant term. Public services sector was not included in this analysis; see Neuman and Ziderman, p. 232.

12. Two other specifications of wife's education that were tried yielded similar results; the variables representing wife's education were significant only in the primary sector, in both cases. First, wife's education was entered as a continuous variable, measured by years of schooling; the coefficient was .0220 ($t = 3.38$), indicating that each additional year of wife's schooling enhances husband's earnings (in the primary sector) by over 2% annually. Alternatively, two dummy variables for wife with 9–11 years and at least 12 years of schooling, respectively, were used (with 0–8 years of schooling as the reference group). The coefficients were, in turn, .0873 ($t = 1.19$) and .1540 ($t = 2.90$).

13. See Becker; and also Finis Welch, "Comment," *Journal of Political Economy* (March–April 1974): S72–S75.

14. The standard deviations are similar: 3.7 and 3.8. The wives of primary-sector workers, too, are more educated—a mean of 9.8 years (standard deviation 3.7), compared with 6.2 (3.9) for wives of secondary-sector workers. The correlation coefficient between spouse's education attainment is higher in the primary sector (.673) than the secondary (.516).

15. To confirm that there is a significant difference between the WSCH.MARR term for the two segments, an earnings equation similar to regression model (2) was run jointly for the entire sample. A dummy variable PRIM was added (= 1 if worker is attached to the primary sector) as well as interaction terms of PRIM with each of the worker's (own) human capital variables as well as with the characteristics of marriage variables. The coefficient on the variable PRIM.WSCH.MARR is positive ($b = .0058$) and significant at the 10% level. Following the suggestion of an anonymous referee, the composite regression was rerun without the full range of interactions between PRIM and husband's own characteristics, leaving interactions with the characteristics of marriage variables only. The effect is to increase both the size of the PRIM.WSCH.MARR coefficient and its level of significance ($b = .0073$, $t = 1.99$).

16. Regression model (2) was estimated with the alternative specifications of wife's schooling given in n. 10. Insignificant coefficients on the interaction term of wife's schooling and marriage duration were found for both the continuous WSCH variable case and for the middle-level schooling interaction dummy (9–11 years schooling and MARR), suggesting that it is only when wives are fairly well educated that they are able to exert a positive cross-productivity effect in raising husbands' income.

17. Supportive findings were produced from largely duplicated regression runs using data drawn from the 1983 Israel Census of Population, a source that was not available at the time the original research reported in Neuman and Ziderman was undertaken. Thus, on the basis of a much more comprehensive data set (with 7,703 and 2,491 observations in the primary and secondary sectors, respectively), but lacking the important PRESWK variable, these regressions offered further support for the existence of dual labor markets in Israel. The human capital variables performed as predicted in each of the sectors, including those testing the cross-productivity effects of wife's education. These regression results based on the census of population are available from us on request.

18. This section owes much to the helpful suggestions of an anonymous referee.

19. James J. Heckman, "The Common Structure of Models of Truncation, Sample Selection and Limited Dependent Variables and a Simple Estimator for Such Models," *Annals of Economic and Social Measurement,* vol. 5 (1976), and "Sample Selection Bias as a Specification Error," *Econometrica* 47 (1979): 153–61. For an application of this approach to dual labor markets, see James J. Heckman and Joseph V. Hotz, "The Sources of Inequality in Panama's Labor Market," *Journal of Human Resources* 21 (1986): 507–42.

20. These results are obtainable from us on request.

21. We also tried adding the selectivity correction factor lambda to this two-stage least-squares regression. Again, lambda was insignificant in both sectors.

Reviews

Loren Brandt. **Commercialization and Agricultural Development: Central and Eastern China, 1870–1937.** New York: Cambridge University Press, 1990. Pp. xiii + 232. $42.50 (cloth).

Daniel Little
Colgate University

Loren Brandt argues for a major reinterpretation of the performance of the Chinese rural economy in the late Qing and Republican periods. Many observers have regarded this period as one of agricultural stagnation, falling real rural incomes, worsening tenancy relations, and increasing rural inequalities.[1] These unfavorable economic developments are often taken as setting the stage for the successful peasant revolution in China. Brandt argues against each of these assertions. He holds that commercialization progressed rapidly during this period, bringing greater integration between domestic and international markets in rice, cotton, and other important commodities; and, further, that commercialization, in turn, induced growth in agricultural output, improvement in the agricultural terms of trade, rising real incomes for farmers and laborers alike, and a probable overall reduction in the range of income inequalities in the countryside of central and eastern China. In fact, Brandt draws a parallel between the performance of the Chinese rural economy during this period of rapid commercialization and its performance during the period of the post-Mao rural reforms; in each case, he asserts, the gains were the result of greater market activity and specialization.

These are important and controversial claims; if sustained, they require a significant reevaluation of the state and direction of change of the Chinese rural economy in the early twentieth century. Brandt's position depends on three assertions: his argument for the extensive integration of rural China into the world economy, his argument that rural wages and labor productivity were rising in this period, and his argument that income inequalities probably improved somewhat throughout this period. How convincing are Brandt's arguments for