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P. V. Viswanath

Indira Gandhi Institute of Development Research, Mumbai
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P. V. Viswanath[1]

Indira Gandhi Institute of Development Research (IGIDR)
General Arun Kumar Vaidya Marg
Goregaon (E), Mumbai- 400065, INDIA

and

Lubin School of Business
Pace University, 1, Pace Plaza
New York, NY 10038
Tel: (212) 618-6518
Fax: (212) 618-6410
E-mail: pviswanath@pace.edu
Web: http://webpage.pace.edu/pviswanath

Abstract

The Mishna in Tractate Gittin discusses land qualities, in a context where land is used to settle monetary obligations. The law is that land of different qualities must be used to pay claimants in different situations; in particular, claimants pursuant to a tort case have the right to have their claim paid with land of the best quality. Creditors have the right to be paid with land of medium quality, while women who are owed money as part of a ketuba (marriage contract) claim may have to be satisfied with land of the lowest quality. However, the total value of the land received by each claimant is just the amount they are owed – it is independent of the quality of the land that is used to pay them. This being the case, the purpose of the legislation is unclear. In this paper, I explore the possibility that the law is designed to minimize the total amount of transactions costs.

Key words: Land markets; law, religion and economics; market microstructure; mishna; sasanian babylonia; Talmud.

JEL codes: K2, K4, N25, Z12

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I. Introduction

In the last two decades, there has been a lot of work in the area of market microstructure. We now have a much better idea of the determinants of liquidity and the impact of various market variables on informational and cost efficiency. However, most of this work has been done in securities markets and in markets where there is a lot of data collection – which tends to be in developed countries. Securities markets are unique in that the products they deal in are claims to cashflow streams – the product is relatively easy to transfer and there are good measures of product quality. This means that extrapolation to other product markets, specifically in developing economies is difficult. According to many policy analysts, failures in developing economies are tied to market failures – the ability of traders in markets to acquire information about the quality of the product is important for the prevention of market failures.[2] Furthermore, the quality of the information produced by transactions in product markets is important for the generation of useful signals to producers.

Policy makers interested in product markets, and particularly those in developing countries, need research on the performance of markets along these dimensions in similar circumstances. One way, obviously, is to study product markets in developing countries today. An alternative would be to study markets in ancient economies. Since data on these economies would not be tainted by the effect of policy proposals mooted by modern-day economists, we'd get a purer look at how markets operated under specific circumstances – how prices were arrived at, in these markets, what sort of information was transmitted, as well as the results of the any policy solutions that might have been adopted by the authorities. The downside, of course, is that data is likely to be very sparse. Still, there can be definite advantages to studying such markets.

[2] See, for example, Stiglitz (1989).

In this paper, we look at land markets in Palestine of the first and second centuries. Most of the data that is available for this time period comes from Jewish legal texts in the Hebrew language that were compiled around 200 C.E. and then used as the basis for legal codes. The most important such text is called the Mishna and was redacted by Rabbi Yehudah haNasi (R. Judah, the Prince), who was leader of the Palestinian Jews (135 – 220 C.E.). There are other texts that enjoyed a purely oral existence, as did the contents of the Mishna originally, but were not included in R. Yehuda haNasi's compilation. These texts, as well as the Mishna, were originally memorized and repeated by scholars, known as tannaim (lit. repeaters) and hence are known as tannaitic texts. These tannaitic pronouncements (each prouncement is known as a mishna, if it is included in the Mishna, else it is known as a baraita (lit. outside text)) were discussed in the Jewish academies in Palestine and Babylonia. The records of these discussions in Aramaic were redacted by R. Yonah and R. Yosi in Palestine towards the end of the fourth century, and by Ravina and R. Assi towards the end of the sixth century in Babylonia. These discussions brought in extraneous elements from later times and are not necessarily reliable records of matters in the first two centuries. However, they also provide tannaitic material in addition to the Mishna, and are thus useful for uncovering the history of Palestine of the first two centuries. Furthermore, to the extent that the economy of first/second century Palestine is similar to those of later centuries in Palestine and in Babylonia, it would not be amiss to cautiously use that evidence to buttress suggestive statements from tannaitic material.[3]

Rather than comb the tannaitic material for information regarding different kinds of product markets, we have chosen a different tactic in this paper. We look at a specific law promulgated in the Mishna relating to the use of land of different qualities for payment of claims. We use this as a basis to learn something about the nature of land markets in Jewish Palestine, as well as the public welfare policies that the Jewish authorities instituted there in connection with monetary transactions.

[3] There are also other Palestinian texts in Hebrew and Aramaic, such as the midrashim – the Mekhilta, the Sifra, the Sifrei, as well as the pesikta texts (such as the Pesikta de Rav Kahana), and other texts, such as the Pirkei deRabbi Eliezer of varying dates. Use of the texts, once again, has to be judicious in inferring the social and economic conditions of first and second century Palestine.

The Mishna in Tractate Gittin[4] has the following ruling regarding payment to different kinds of claimants. Claimants pursuant to a tort case have the right to have their claim paid with land of the best quality.[5] Creditors have the right to be paid with land of at least medium quality, while women who are owed money as part of their ketuba[6] claims (either a divorcee or a widow) have to be satisfied with land of the lowest quality.[7] On the face of it, this seems to prioritize different classes of claims. It would seem that tort claimants are preferred to creditors, who in turn are preferred to women claiming their rights following a divorce or the death of their husband. The question is: what exactly does this preference consists of; and two, why is one class of claimants given priority over another?[8]

The simplest answer to the first question is that no claimants get less or more than the amount owed to them; whatever quality of land is used to pay them, they would receive a total value of land equal to what they are owed.[9] It is just that tort claimants would get that

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[4] Chapter 5, mishna 1. The Mishna is divided into six orders. Each order consisted of several tractates. Each tractate contained several chapters, with each chapter consisting of several units. The order that contained the tractates Gittin and Ketubot was called Nashim – or women – and contained legal prouncements pertaining more or less to the status of women. Thus *Gittin* dealt with the procedure of divorces, while *Ketubot* related to the marriage contract. Each of these units was also called a *mishna* (lower case, pl. *mishnayot*). A *mishna* usually presents a legal ruling that applies to a given situation or a set of related situations.

[5] The Hebrew text of the mishna runs as follows: " הניזקין, שמין להן בעידית; ובעל חוב, בבינונית; וכתובת אישה, בזיבורית. רבי מאיר אומר, אף כתובת אישה בבינונית.

[6] According to the Orthodox Union (http://www.ou.org/torah/tt/5763/shemini63/specialfeatures_mitzvot.htm), "While the ketuba does stipulate certain obligations of the husband during married life, starting out with the requirement to work to support the wife, the main significance of the ketuba is the obligation for the husband to pay his wife a stipulated sum if she is divorced or widowed." This is further elucidated in the Shulkhan Arukh, Even ha-Ezer, 66:6. The Shulkhan Arukh is the authoritative code of Jewish Law, compiled by Rabbi Joseph Caro in the 16th century.

[7] The halakha as discussed in the Babylonian Talmud, and as later encoded in the Shulkhan Arukh allows for payment using other objects of value, such as currency. However, while probably implicit, this is not clearly stated in the Mishna. We do not explore this issue; in any case, this should not affect our main thesis as developed in the next section.

[8] The Mishna was compiled in Palestine (the Land of Israel) around 200 CE and the rulings therein apply to the Jewish community of that time in Palestine, and perhaps in the Diaspora as well. However, we will not go into the question of where and when the mishnaic law was applicable. Rather, we will assume that the law did apply around 200 CE and before in Palestine. The main diaspora area where the mishnaic law might have applied as well, is Babylonia – an area mostly co-extensive with modern day Iraq and parts of Turkey and Iran, particularly the areas close to the Euphrates and Tigris rivers. The Babylonian Talmud, which is partly a commentary on the Mishna, was compiled based on rabbinic discussions in Babylonia.

[9] An alternative reading of the mishna is to presume that claimants higher up in the priority listing get something extra compared to the other claimants lower down in the listing. Let us consider how this might work. Suppose there is a creditor and a divorced woman, who have claims of the same monetary amount; then, the court might figure out how many units of lower quality land would be equivalent to that monetary amount. Perhaps the creditor might then get the same amount of land, but of medium quality. If this is so, then, in terms of monetary value, the creditor would end up getting more than his original claim. There is no reason to expect

value in top quality land, creditors would get it in intermediate quality land, etc. In other words, the amount of land that the claimant would receive would vary inversely with the quality of land, since the price of the land would be increasing in the quality. [10]

If so, prima facie, there does not seem to be any reason to prefer higher quality land. It would be comparable to getting ten one-dollar bills or one ten-dollar bill. What then could be the intent of the mishna? We will explore this in the next section.

II. A Transactions Cost based Explanation

This conundrum may perhaps be resolved if we consider the characteristics of the market for land in Palestine. We first make some assumptions and try to explain the mishnaic law. We then explore the extent to which those assumptions can be justified.

First, assume that the market for land is illiquid. This implies, consequently, not insubstantial transaction costs in buying and selling land. Second, assume that tort claimants are most likely to resell the land, creditors somewhat less likely and divorced women unlikely to resell. Third, assume that transactions costs are decreasing in land quality. Given the first two assumptions, the law as stated is equivalent to awarding highest quality land to individuals most likely to resell it and lowest quality land to individuals least likely to resell it. Given assumption three, the law would lead to a minimization of overall transactions costs.

The first assumption, that land markets are illiquid is a pretty reasonable assumption. Given that land is immobile, the market for land is to a great extent limited to individuals who live and operate in the vicinity. This is pointed out indirectly by Rav Papa and Rav Huna, son of R. Yehoshua of Bei Rav in the Babylonian Talmud[11] when they discusses

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that the tanna meant such a complex procedure. Henceforth, we will adopt the simple interpretation proposed in the text.

[10] This is consistent with the interpretation of Rashi on the mishna, as well as the discussions of this issue in the Babylonian Talmud (see, for example, folio 7b in the tractate Bava Kamma.)

[11] See tractate Bava Kamma, folio 7b

movable goods or *metaltelim*. They say, more or less – all *metaltelim* are considered of the highest quality, for if they can't be sold here, they can be sold elsewhere. They contrast *metaltelim* to land, which is much more difficult to sell. While this statement is made regarding Babylonia, there is no reason to believe that the market for land in Israel was substantially different.

As far as the second assumption, tort claimants, almost by definition, have suffered a loss and have expenses that they have to meet. Hence it makes sense that they would need to, and wish to, sell the land that they receive as compensation, in order to meet those expenses. A person who has lent money has already been holding some of his wealth in land, and although he may indeed feel the need to convert land that he gets from a debtor into money, he may very well decide to continue keeping it in something less than perfectly liquid.

At the other end, whether a divorced woman was likely to sell land or not would depend on the socio-economic circumstances of unmarried women in those days. Considering the high level of transaction costs in disposing of land, the lack of a developed capital market to invest wealth and the continuing need for produce, it would make sense for a woman who had to depend on herself to buy agricultural land and live off its produce. Again, we do have some evidence on this point from the Babylonia Talmud, as well. The gemara in Ketubot 67a notes that a widow would not sell land that comes her way. Rava, *ad loc*, says:[12] "In the beginning, I used to say that a woman may collect her ketuba from a wallet full of coins in Mekhoza, the reason being that they rely on collecting from them. However, when I saw that they take it and go out, and when they find land, they buy it, I said – they may (only) collect from land." That is, according to the evidence of Rava, women who had to rely on themselves for a living preferred to buy land and live on its produce. Obviously, if they already had land, they wouldn't sell it. Again, the sociological and

[12] אמר רבא מריש הוה אמינא הני ארנקי דמחוזא אשה גובה פרנא מהם מאי טעמא אסמכתייהו עלייהו כיון דחזאי דשקלי להו ונפקי וכי משכחי ארעא זבני בהו אמינא אסמכתייהו אארעא הוא
"me-reysh, hava amina, hanei arnekei de-mekhoza, isha govah parna meyhem. Mai ta'ama? Asmakhtayhu alayhu. Keyvan dekhazoi, deshakli lehu venafki, ve-chi mishkekhi ar'a, zabinei behu, amina asmakhtayhu a-ar'a hu!"

economic circumstances in Babylonia of the 3th century were probably not too different from those in Palestine in the first and second centuries.[13]

Finally, we provide some evidence regarding the relationship between land quality and transactions costs. First of all, we have evidence, once more from the Babylonian Talmud – Rav Papa and Rav Huna in Bava Kamma 7b seem to believe that liquidity is higher for higher quality land. In explaining why the Torah stipulates that tort claimants be paid with "meytav sadehu," the best of his land," they say – (the injuror) should give him (the claimant) from the best of his land, since prospective buyers would "jump" to buy it. There is also indirect evidence from the literature on present-day equity markets – it is well known that bid-ask spreads[14] for listed stocks on American exchanges are negatively correlated with firm size. Although firm size is probably not perfectly correlated with quality, nevertheless, it may be expected that good quality firms would grow in size, leading to, at least, an approximate relationship between firm size and quality.[15] If this is so, we have a correlation between firm quality and liquidity. More directly, Chakravarty et al. (2003) look at the determinants of the bid-ask spread for US Treasury bonds, US Corporate bonds and Municipal bonds. They report the following:

> (I)n all markets, the mean bid-ask spread is generally higher for lower credit ratings. In the corporate market, the mean bid-ask spread is about 14 cents for AA-rated bonds and 28 cents for below-investment-grade bonds.

III. Future Work and Conclusion

In the previous section, we provided prima facie arguments and evidence that the law prescribing the means of payment in satisfaction of different kinds of claims may have been constructed so as to minimize transactions costs.

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[13] Rava was born in 270 C.E. and died in 350 C.E. and studied at the yeshiva of Pumbedita in Babylonia.
[14] A measure of liquidity (cf. Amihud and Mendelson, 1986).
[15] See the Appendix for a theoretical argument as to why transactions costs should be negatively correlated with quality.

In order to provide greater support for our hypothesis, we would need to further investigate the nature of land markets in Palestine and the role of women in Jewish society in the first centuries of the first millennium. It would also be useful to look at how prices were estimated by Jewish courts in resolving disputes between litigants in these contexts. We also need to discuss why the rabbis had to resort to legislative, i.e. coercive methods, to obtain the cost-minimizing result. In other words, why would the parties involved not have found it in their interests to act in consonance with the requirements of the mishna even in the absence of such a law?[16] While much more works needs to be done in this context, we have provided a tentative explanation for an otherwise puzzling piece of Talmudic legislation.

[16] For an answer to this question in a similar context, see Viswanath (2000) in the context of risk-sharing in agricultural contract law.

Appendix: Why should transactions costs be negatively correlated with quality?

Suppose we have three different kinds of fields, with the following yields:

Field quality	Distribution of crop yields in units per acre (Uniform distribution)	Price of field
Top	11, 12, 13	120
Medium	10, 11, 12	110
Low	9, 10, 11	100

Suppose we assume that the price is simply a multiple of the average yield of the field, and not of the uncertainty (of course, in this case, the uncertainty measured by the standard deviation would be the same; alternatively, we could assume that yield uncertainty is diversifiable and, hence, not relevant for pricing), then we'd have prices as above, assuming a yield multiple of 10.

Now, suppose transactions costs are related to the difficulty of figuring out the true yield, then it is not unreasonable to think of this cost as being a function of the spread of the distribution of yields, which is assumed to be the same for all three field types, above. Hence the transactions costs per dollar of field value would be lower, the higher the field quality.

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