Claims

1. A system for determining a pairwise merchant preference index, comprising:

a transactions database storing transaction data indicative of a plurality of transactions carried out over a payment network, the transaction data comprising, for respective transactions, payment card identifiers, merchant identifiers, merchant category codes, issuer identifiers, payment device types, geographical locations, transaction amounts, transaction times and transaction dates;

a transaction indexing component in communication with the transactions database, the transaction indexing component being configured to generate a database query to query the transactions database to retrieve transactions for a plurality of payment cards that occurred within a predetermined time window;

a preference index component which is configured to compute a pairwise merchant preference index comprising identified pairs of merchants for a first merchant matching criterion and a second merchant matching criterion by:

generating, from at least a subset of the retrieved transactions, a set of payment card identifiers of payment cards which meet both the first merchant matching criterion and the second merchant matching criterion;

generating paired data for the first merchant matching criterion and the second merchant matching criterion, the paired data comprising respective pairs of transaction values for respective members of the set of payment card identifiers; and

computing at least one aggregate quantity using the paired data; and

a client device in communication with the preference index component, the client device configured for receiving and displaying the identified pairs of merchants of the pairwise merchant preference index to an issuer bank allowing the issuer bank to target combinations of merchants for customer offers.

2. A system according to claim 1, wherein the first merchant matching criterion corresponds to a merchant identifier or a merchant category code.

3. A system according to claim 1, wherein the second merchant matching criterion corresponds to a merchant identifier or a merchant category code.

4. A system according to claim 1, wherein at least one aggregate quantity comprises a sum or average over respective minima of the pairs of transaction values.

5. A system according to claim 1, wherein the transaction values are total numbers of transactions within the predetermined time window.

6. A system according to claim 1, wherein the preference index component is configured to compute a plurality of paired merchant preference indices for the first merchant matching criterion and a plurality of second merchant matching criteria, by:

generating, from the retrieved transactions, a plurality of sets of payment card identifiers of payment cards which meet both the first merchant matching criterion and respective ones of the plurality of second merchant matching criteria;

generating a plurality of sets of paired data, each set of paired data comprising respective pairs of transaction values for the first merchant matching criterion and the respective second merchant matching criterion, for respective members of the set of payment card identifiers; and

computing respective aggregate quantities using the respective sets of paired data.

7. A system according to claim 6, wherein the preference index component is configured to normalize the paired merchant preference indices according to a reference value.

8. A system according to claim 7, wherein the reference value is an average of the paired merchant reference indices.

9. A system according to claim 1, wherein the preference index component is configured to generate a filtered set of the paired data by filtering out pairs of transaction values which are below respective first and second transaction number thresholds, and to compute the at least one aggregate quantity using the filtered set of paired data.

10. A system according to claim 9, wherein at least one aggregate quantity comprises a total number of pairs in the filtered set.

11. A system according to claim 9, wherein the preference index component is configured to determine the first transaction number threshold using a distribution of transaction numbers for payment cards meeting the first merchant matching criterion, and to determine the second transaction number threshold using a distribution of transaction numbers for payment cards meeting the second merchant matching criterion.

12. A system according to claim 1, wherein the transaction indexing component is configured to modify the database query by appending at least one additional criterion.

13. A system according to claim 12, wherein the at least one additional criterion is based on one or more of an issuer identifier, a payment device type, a geographical region, a transaction time range, and one or more transaction dates.

14. A system according to claim 1, wherein the transaction indexing component is configured to retrieve a random subset of the transactions within the predetermined time window.

15. A system according to claim 14, wherein the random subset comprises a random selection of 80% or less of the transactions within the predetermined time window.

16. A method for determining a pairwise merchant preference index, comprising:

storing transaction data in a transactions database, the transaction data being indicative of a plurality of transactions carried out over a payment network, the transaction data comprising, for respective transactions, payment card identifiers, merchant identifiers, merchant category codes, issuer identifiers, payment device types, geographical locations, transaction amounts, transaction times and transaction dates;

generating, by a transaction indexing component, a database query to query the transactions database to retrieve transactions for a plurality of payment cards that occurred within a predetermined time window;

computing, by a preference index component, a pairwise merchant preference index comprising identified pairs of merchants for a first merchant matching criterion and a second merchant matching criterion by:

generating, from at least a subset of the retrieved transactions, a set of payment card identifiers of payment cards which meet both the first merchant matching criterion and the second merchant matching criterion;

generating paired data for the first merchant matching criterion and the second merchant matching criterion, the paired data comprising respective pairs of transaction values for respective members of the set of payment card identifiers; and

computing at least one aggregate quantity using the paired data; and

transmitting, by the preference index component, the identified pairs of merchants of the pairwise merchant preference index to a client device for display to an issuer bank allowing the issuer bank to target combinations of merchants for customer offers.

17. A method according to claim 16, wherein the first merchant matching criterion corresponds to a merchant identifier or a merchant category code.

18. A method according to claim 16, wherein the second merchant matching criterion corresponds to a merchant identifier or a merchant category code.

19. A method according to claim 16, wherein at least one aggregate quantity comprises a sum or average over respective minima of the pairs of transaction values.

20. A method according to claim 16, wherein the transaction values are total numbers of transactions within the predetermined time window.

21. A method according to claim 16, comprising computing, by the preference index component, a plurality of paired merchant preference indices for the first merchant matching criterion and a plurality of second merchant matching criteria, by:

generating, from the retrieved transactions, a plurality of sets of payment card identifiers of payment cards which meet both the first merchant matching criterion and respective ones of the plurality of second merchant matching criteria;

generating a plurality of sets of paired data, each set of paired data comprising respective pairs of transaction values for the first merchant matching criterion and the respective second merchant matching criterion, for respective members of the set of payment card identifiers; and

computing respective aggregate quantities using the respective sets of paired data.

22. A method according to claim 21, comprising normalizing the paired merchant preference indices according to a reference value.

23. A method according to claim 22, wherein the reference value is an average of the paired merchant reference indices.

24. A method according to claim 16, comprising generating, by the transaction indexing component, a filtered set of the paired data by filtering out pairs of transaction values which are below respective first and second transaction number thresholds, and computing the at least one aggregate quantity using the filtered set of paired data.

25. A method according to claim 24, wherein at least one aggregate quantity comprises a total number of pairs in the filtered set.

26. A method according to claim 24, comprising determining, by the preference index component, the first transaction number threshold using a distribution of transaction numbers for payment cards meeting the first merchant matching criterion, and determining the second transaction number threshold using a distribution of transaction numbers for payment cards meeting the second merchant matching criterion.

27. A method according to claim 16, comprising modifying, by the transaction indexing component, the database query by appending at least one additional criterion.

28. A method according to claim 27, wherein the at least one additional criterion is based on one or more of an issuer identifier, a payment device type, a geographical region, a transaction time range, and one or more transaction dates.

29. A method according to claim 16, comprising retrieving, by the transaction indexing component, a random subset of the transactions within the predetermined time window.

30. A method according to claim 29, wherein the random subset comprises a random selection of 80% or less of the transactions within the predetermined time window.

31. A non-transitory computer-readable medium having stored thereon program instructions for causing at least one processor to:

store transaction data in a transactions database, the transaction data being indicative of a plurality of transactions carried out over a payment network, the transaction data comprising, for respective transactions, payment card identifiers, merchant identifiers, merchant category codes, issuer identifiers, payment device types, geographical locations, transaction amounts, transaction times and transaction dates;

generate a database query to query the transactions database to retrieve transactions for a plurality of payment cards that occurred within a predetermined time window;

compute a pairwise merchant preference index comprising identified pairs of merchants for a first merchant matching criterion and a second merchant matching criterion by:

generating, from at least a subset of the retrieved transactions, a set of payment card identifiers of payment cards which meet both the first merchant matching criterion and the second merchant matching criterion;

generating paired data for the first merchant matching criterion and the second merchant matching criterion, the paired data comprising respective pairs of transaction values for respective members of the set of payment card identifiers;

computing at least one aggregate quantity using the paired data; and

transmit the identified pairs of merchants of the pairwise merchant preference index to a client device for display to an issuer bank allowing the issuer bank to target combinations of merchants for customer offers.

32. A non-transitory computer-readable medium according to claim 31, wherein the first merchant matching criterion corresponds to a merchant identifier or a merchant category code.

33. A non-transitory computer-readable medium according to claim 31, wherein the second merchant matching criterion corresponds to a merchant identifier or a merchant category code.

34. A non-transitory computer-readable medium according to claim 31, wherein at least one aggregate quantity comprises a sum or average over respective minima of the pairs of transaction values.

35. A non-transitory computer-readable medium according to claims 31, wherein the transaction values are total numbers of transactions within the predetermined time window.

36. A non-transitory computer-readable medium according to claims 31, wherein the program instructions cause the at least one processor to compute a plurality of paired merchant preference indices for the first merchant matching criterion and a plurality of second merchant matching criteria, by:

generating, from the retrieved transactions, a plurality of sets of payment card identifiers of payment cards which meet both the first merchant matching criterion and respective ones of the plurality of second merchant matching criteria;

generating a plurality of sets of paired data, each set of paired data comprising respective pairs of transaction values for the first merchant matching criterion and the respective second merchant matching criterion, for respective members of the set of payment card identifiers; and

computing respective aggregate quantities using the respective sets of paired data.

37. A non-transitory computer-readable medium according to claim 36, wherein the program instructions further cause the at least one processor to normalize the paired merchant preference indices according to a reference value.

38. A non-transitory computer-readable medium according to claim 37, wherein the reference value is an average of the paired merchant reference indices.

39. A non-transitory computer-readable medium according to claim 31, wherein the program instructions further cause the at least one processor to generate a filtered set of the paired data by filtering out pairs of transaction values which are below

respective first and second transaction number thresholds, and to compute the at least one aggregate quantity using the filtered set of paired data.

40. A non-transitory computer-readable medium according to claim 39, wherein at least one aggregate quantity comprises a total number of pairs in the filtered set.

41. A non-transitory computer-readable medium according to claim 39, wherein the program instructions further cause the at least one processor to determine the first transaction number threshold using a distribution of transaction numbers for payment cards meeting the first merchant matching criterion, and to determine the second transaction number threshold using a distribution of transaction numbers for payment cards meeting the second merchant matching criterion.

42. A non-transitory computer-readable medium according to claim 31, wherein the program instructions further cause the at least one processor to modify the database query by appending at least one additional criterion.

43. A non-transitory computer-readable medium according to claim 42, wherein the at least one additional criterion is based on one or more of an issuer identifier, a payment device type, a geographical region, a transaction time range, and one or more transaction dates.

44. A non-transitory computer-readable medium according to claim 31, wherein the program instructions further cause the at least one processor to retrieve a random subset of the transactions within the predetermined time window.

45. A non-transitory computer-readable medium according to claim 44, wherein the random subset comprises a random selection of 80% or less of the transactions within the predetermined time window.